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EIGHTH REPORT

OF

THE COMMISSIONERS

FOR THE

EXHIBITION OF 1851,

TO THE

RIGHT HON. WINSTON CHURCHILL, M.P.

ONE OF HIS MAJESTY'S PRINCIPAL SECRETARIES OF STATE

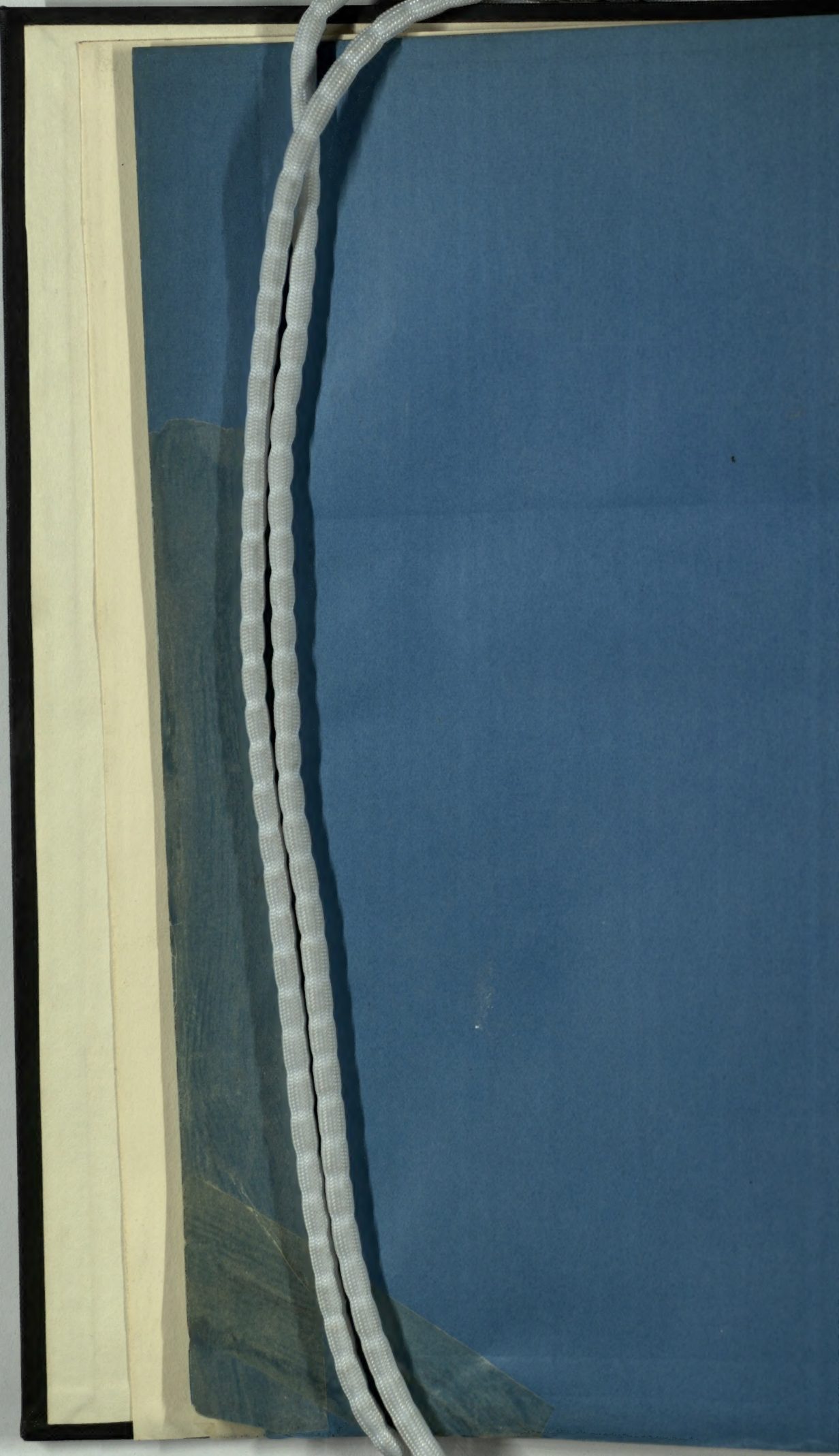


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1911



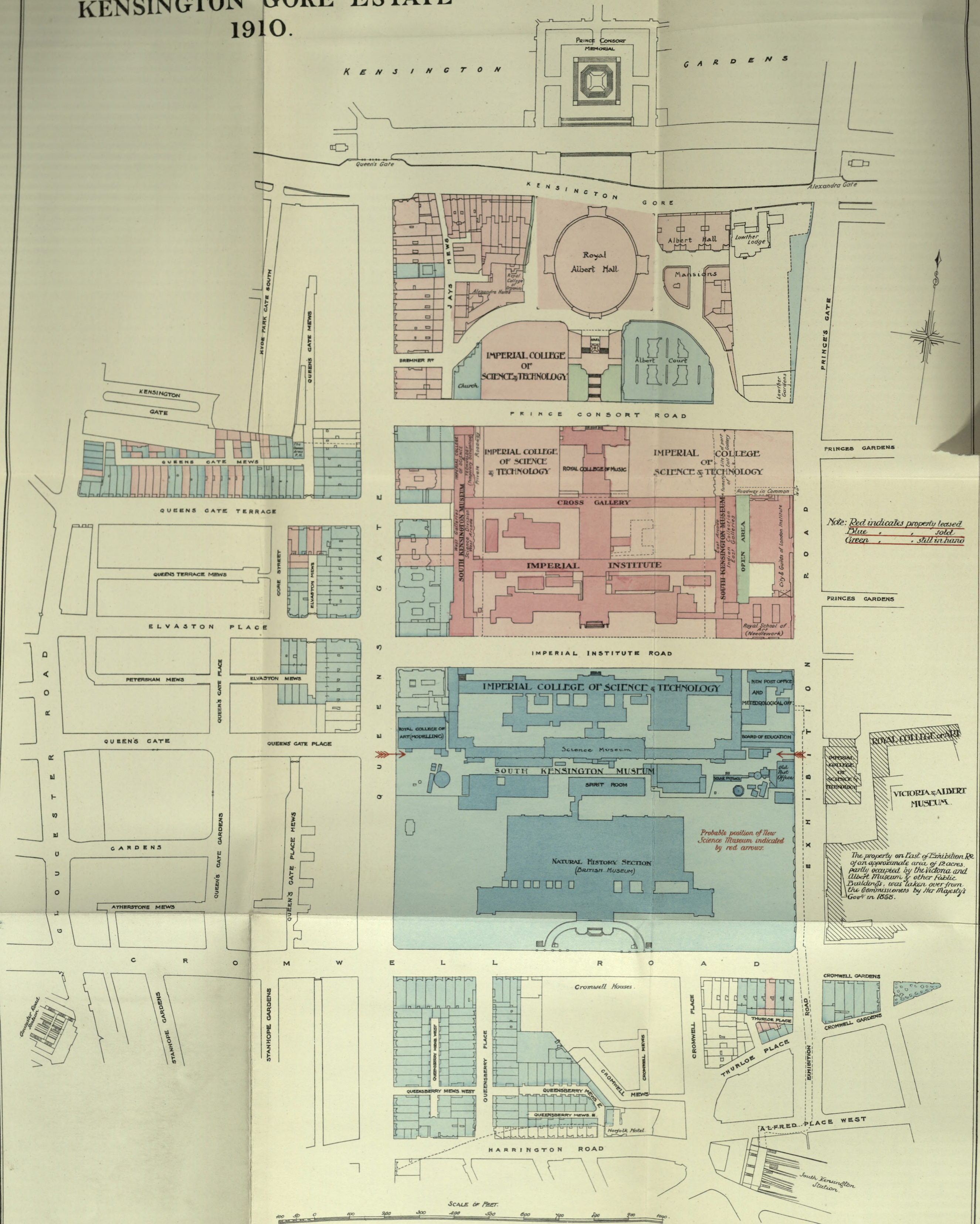


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ROYAL COMMISSION FOR THE EXHIBITION
1884
KENSINGTON GORE ESTATE
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EIGHTH REPORT

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ON THE COMMISSIONERS

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FOR THE

EXHIBITION OF 1851,

TO THE

RIGHT HON. WINSTON CHURCHILL, M.P.

ONE OF HIS MAJESTY'S PRINCIPAL SECRETARIES OF STATE



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EIGHTH REPORT
OF THE
COMMISSIONERS FOR THE EXHIBITION OF 1851,
TO THE
RIGHT HON. WINSTON CHURCHILL, M.P.

One of His Majesty's Principal Secretaries of State.

SIR,

Since the issue of our last Report on 23rd July, 1889, we have regularly submitted to the Home Office for presentation to the Sovereign particulars of the principal transactions in which we have been engaged from year to year, as well as our annual financial statements, and in conformity with the provisions of the Supplemental Charter, which Her Majesty Queen Victoria was graciously pleased to grant to us on 2nd December, 1851, we have now the honour to transmit to you, for the approval of His Majesty the King, a summary of those transactions in this, the Eighth Report of our proceedings.

During the interval that has elapsed since the issue of our Seventh Report the nation has been twice plunged into heartfelt mourning by the loss of the reigning Sovereign.

The gracious regard which Queen Victoria evinced for our proceedings was continued to the end of her reign, and it is a matter for much satisfaction that Her Majesty was able to witness the gradual realisation of the great conceptions which the Prince Consort, our illustrious First President, bequeathed to us after a life spent in ceaseless activity in the cause of Science and Art.

Queen
Victoria.

King Edward the Seventh, after acceding to the throne, graciously continued to extend to our proceedings the same interest he had shown during the thirty-one years in which as Prince of Wales he had acted as President of our body. His complete sympathy with the ideals of his honoured father was an influential factor in the success that attended his long tenure of the Presidency.

King
Edward.

King
George.

After the accession of His late Majesty in 1901, His Royal Highness the Prince of Wales (now King George the Fifth) became our President, and his intimate knowledge of our work and his wise counsels and judicious advice have been of the greatest value to the Commission. We feel assured that as Sovereign His Majesty will deign to continue to us his gracious guidance and support.

Prince
Arthur of
Connaught.

His Majesty's accession to the Throne has necessitated the election of a new President, to which office we have appointed, with the approval of the King, His Royal Highness Prince Arthur of Connaught, thus securing a continuance of the direct interest in our labours that has always been evinced by the Royal Family.

Changes
in Com-
mission.

Since our last Report, we have, under the power conferred by our Supplemental Charter, elected as Commissioners* : His Royal Highness the Prince of Wales (now our gracious Sovereign), the Duke of Norfolk, the Duke of Fife, the Duke of Argyll, the Earl Spencer, Viscount Esher, Lord Kelvin (since deceased), Lord Rayleigh, Lord Welby, Lord James of Hereford, Lord Courtney of Penwith, the Right Hon. Sir Henry Campbell-Bannerman (since deceased), the Right Hon. Herbert Asquith, the Right Hon. Thomas Henry Huxley (since deceased), Lieut.-Colonel the Right Hon. Sir Fleetwood Edwards (since deceased), Lieut.-Colonel the Right Hon. Sir Arthur Bigge, the Right Hon. Sir Francis Mowatt, the Right Hon. Sir Edward Walter Hamilton (resigned 1908, and since deceased), the Right Hon. Sir Henry Roscoe, the Right Hon. Sir George Murray, Baron Ferdinand de Rothschild (since deceased), Sir John Everett Millais (since deceased), Sir Charles Lister Ryan, Sir Norman Lockyer, Sir Archibald Geikie, Sir Robert Morant, Sir Arthur Rücker, Dr. William Garnett, Dr. Richard Tetley Glazebrook, and Mr. Francis Ogilvie.

We have to record the death of the following members of the Royal Commission : His Royal Highness the Duke of Edinburgh, His Royal Highness the Duke of Cambridge, His Serene Highness the Duke of Teck, the Duke of Sutherland, the Marquis of Salisbury, the Marquis of Ripon, the Earl Granville, the Earl of Selborne, the Earl of Carnarvon, the Earl Spencer, Viscount Wolverhampton, Viscount Sherbrooke, Lord Playfair, Lord Thring, Lord Aberdare, Lord Sandford, Lord Leighton, Lord Herschell, Lord Kelvin, the Right Hon. William Ewart Gladstone, the Right Hon. Sir Henry Campbell-Bannerman,

* A complete list of the Commissioners appointed since the formation of the Commission will be found in the Appendix (A, page 84).

the Right Hon. Hugh C. E. Childers, the Right Hon. Anthony John Mundella, the Right Hon. Thomas Henry Huxley, General the Right Hon. Sir Henry Ponsonby, Lieut.-Colonel the Right Hon. Sir Fleetwood Edwards, Admiral of the Fleet Sir Alexander Milne, Baron Ferdinand de Rothschild, Sir William Anderson, Sir Richard Wallace, Sir Sydney Waterlow, Sir Frederick Bramwell, Sir John Everett Millais, and Mr. Thomas Field Gibson.

We desire especially to place on record our appreciation of the long and devoted services of the late Lord Playfair, and our sense of the great loss we sustained by his death in the year 1898. As Dr. Playfair,

Death of
Lord
Playfair.

he acted as Special Commissioner in connection with the Exhibition of 1851, and from that time became an active leader in the movement for improving industrial education in this country. After his election as a member of the Royal Commission in 1869, he took a prominent part in its executive duties, and for several years acted as Deputy Chairman of the Board of Management. He also acted as Honorary Secretary to the Royal Commission from 1883 to 1889, and, mainly owing to his skill in conducting our affairs during that period, the previous deficit in our income was converted into a surplus of more than £5,000 a year, with a prospect of considerable increase, which has since been realised. The scheme of Science Research Scholarships, to which, as will hereafter be shown, we have devoted a considerable portion of our surplus income, originated with Lord Playfair, and, for the first five years of its working, he, as Chairman of the Scholarships Committee, took upon himself the burden of the management. On Lord Playfair relinquishing his more active duties in 1896, Sir Henry Fowler (afterwards Viscount Wolverhampton) was appointed Deputy Chairman of the Board of Management, and Sir Henry Roscoe Chairman of the Scholarships Committee.

His scheme
of Science
Research
Scholar-
ships.

His Royal Highness the Prince Christian of Schleswig-Holstein resigned his position of Chairman of the Board of Management in 1904, after having discharged the duties of that office for no less than twenty-three years. His services during that long period were of inestimable value to the Commission, and his retirement from the executive of the Commission due to the increasing number of his public engagements caused the greatest regret to our whole body.

Prince
Christian
resigns
Chairman-
ship of the
Board of
Manage-
ment.

His Royal Highness was succeeded as Chairman of the Board of Management by the late Lord Wolverhampton, who, to our great regret, in the early part of last year, was compelled by failing health to relinquish that post. His recent death following so closely on his retirement from public affairs we deeply deplore, and

Succeeded
by Viscount
Wolver-
hampton.

we cannot refer to the loss we have thus sustained without bearing testimony to his unremitting zeal and assiduous interest in our work for which we owe him a profound debt of gratitude. No details of our work were too minute for his consideration, and during the twenty-one years in which he was closely associated with the Board of Management he brought to bear upon the affairs of the Commission an administrative ability which has done much to bring our deliberations to a successful issue.

Viscount
Esher.

As his successor in the office of Chairman we have been fortunate enough to secure the services of Viscount Esher, who for several years has taken an active part in the duties of the Board of Management.

General Sir Dighton Probyn was elected Treasurer of the Royal Commission in 1896 in succession to the late Lord Aberdare.

Death of
Lord
Thring.

By the lamented death of Lord Thring in 1907 we were deprived of the assistance of a member of our body who had always taken a conspicuous part in the management of our affairs since his election in 1861.

Lord
Kelvin.

The valuable services rendered by the late Lord Kelvin during the seventeen years in which he acted on the Commission, especially in connection with the Science Research Scholarships Committee, of which he was an original member, deserve our grateful acknowledgment.

Sir Edward
Hamilton.

We are specially indebted to the late Sir Edward Walter Hamilton for his careful attention to our finances during the time he served on the Board of Management prior to his resignation in 1908.

Sir Arthur
Ellis.

We sustained a severe loss through the death of Major-General Sir Arthur Ellis in 1907. Originally appointed a Commissioner in 1877, he resigned his membership in 1889 to become our Secretary, the duties of which office he discharged with signal advantage to the Commission until the day of his death.

Sir Arthur
Bigge
elected
Secretary.

On the death of Sir Arthur Ellis, Lieut.-Colonel the Right Hon. Sir Arthur Bigge, who had previously been an active member of our Board of Management, was elected Secretary. During his tenure of this office he displayed conspicuous ability, and it was with much regret that we learned in July last that the calls upon his time would prevent him from giving us the benefit of his valuable services in the future. We reluctantly accepted his resignation and elected in his place Mr. Evelyn Shaw, who has served us as Assistant Secretary for the past six years.

His resignation and
appointment of new
Secretary.

We mentioned in our last Report that in our dealings with the Kensington Gore Estate, we had kept in mind the probable requirements of His Majesty's Government for buildings connected with Science and the Arts, and had accordingly reserved for such requirements about $4\frac{1}{2}$ acres of land on the south of the Imperial Institute Road. In July, 1888, we had addressed a letter to the Lords of the Treasury offering to convey this plot, which was of the estimated value of £200,000, to the Government for the sum of £70,000 on condition that it should be permanently used for purposes connected with Science or the Arts. We had pointed out that if the Government should accept this offer, and should also exercise their option to purchase the freehold of the central portion of the south Arcades, then in lease to them at a rent of £1,500 a year, they would become possessed of a compact piece of ground north of the Natural History Museum sufficient for a site for a Patent Museum or other public buildings.

Sale of
Land south
of Imperial
Institute
Road to
Govern-
ment.

In the spring of 1890 the Government accepted this offer, and at the same time agreed to purchase for the sum of £30,000 the freehold of the building in question.

The necessary vote having been passed by the House of Commons, the purchase was completed on the 31st March, 1890, and the purchase money was applied in reduction of the mortgage debt as hereafter mentioned. The conveyance * provided that the property should be permanently used for purposes connected with Science or the Arts; but that the Government should be released from the covenant contained in the conveyance, made in 1864, of the site of the Exhibition of 1862, restricting its use to purposes connected with Science or the Arts, as far as such covenant applied to the frontage in Queen's Gate, lying between the Commissioners' estate and the boundary of the grounds of the Natural History Museum, a plot about 240 feet in length.

The Government have not, however, availed themselves of the removal of this restriction, and we understand that it is their intention to reserve this plot of land for the future requirements of the Board of Education in connection with Science and Art.

Since the purchase was effected, the Government have devoted a portion of the site abutting on the Imperial Institute Road to the new buildings containing the Physical and Chemical Laboratories of the

New build-
ings—
Physical
and
Chemical
Labora-
tories, &c.

* A copy of the Conveyance will be found in the Appendix (B, p. 86).

Imperial College of Science and Technology, and the Science Library. At the north-east corner they have erected a building for the Meteorological Office, the ground floors of which accommodate the District Post Office, which had been established since the year 1872 in temporary premises in Exhibition Road. The remaining portion of the site has been occupied by buildings, mainly of a temporary character, under the control of the Board of Education. We have, however, recently learned that the Government hope shortly to erect a permanent building for the National Science Collections on a portion of this site as indicated in the plan attached to this Report (*facing title-page*). It is contemplated that the building will have a frontage on Exhibition Road between the new Post Office on the north and the Gardens of the Natural History Museum on the south, and will extend in a westerly direction along the north of the Natural History Museum as far as Queen's Gate.

If this plan be carried out, the whole of the land lying between the Physical and Chemical Laboratories of the Imperial College and the Natural History Museum will be fully developed.

Science
Scholar-
ships.

We stated in our last Report that we had resolved to allot an annual sum of not less than £5,000 a year towards the establishment of scholarships, for the purpose of aiding the development of scientific culture and technical training in the manufacturing districts of the country, as it appeared to us that scholarships intended to enable students in provincial colleges of science to extend their studies would be the best means of recognising the claims of the provinces to participate in the resources at our disposal.

Awarded
for
research.

A Committee of gentlemen, especially conversant with the working and needs of scientific education, was thereupon appointed, with the late Lord Playfair as Chairman, to prepare a scheme for the distribution and regulation of the scholarships, so that they might be supplementary to and not in competition with scholarships provided by the Government or public bodies or by private endowment. This Committee pointed out at an early stage in its proceedings that very little would be gained by our action unless the scholarships awarded differed from those already existing, and that therefore they should be of a higher order, and awarded for research in the experimental sciences bearing upon the industries.

The recommendations of this Committee received our unanimous approval, and we resolved to adopt them as embodying the principles on which the scholarships should be founded.

Although it was originally intended to confine the award of these scholarships to students of provincial colleges, it was found on more detailed consideration that it would be desirable to extend the benefits of the scheme to the colonies, and in the selection of universities and colleges to be invited from time to time to nominate candidates certain colonial institutions were included where special attention is given to scientific instruction. The scheme was subsequently extended to include further institutions in the Colonies, and one in the Metropolis. A list of the institutions included in the scheme showing the manner in which the nominations are distributed will be found in the Appendix (C, page 41).

Extension
of scheme
to the
Colonies.

As an epitome of the general regulations which have governed the award and tenure of our scholarships since their establishment in 1891 is given in the Appendix (C, page 38) it will be enough here to explain that these scholarships are awarded to students who have passed through a university curriculum and have given distinct evidence of capacity for original research, to enable them to continue the prosecution of science, with a view of aiding its advance, or its application to the industries of the country.

The scholarships are of the annual value of £150, and are ordinarily tenable for two years, the continuation for the second year depending on the reports of the scholars' first year's work being satisfactory to the Scholarships Committee. The Committee may renew a limited number of the scholarships for a third year, where they are of opinion that the renewal is likely to result in work of scientific importance. The scholarships are annually awarded to persons primarily recommended by the governing bodies of the institutions to which nominations are from time to time allotted, and the holders are required in the absence of special circumstances to proceed to an institution other than that by which they were nominated, the institution selected and the work proposed to be carried out being subject to the approval of the Scholarships Committee.

Value and
duration of
Scholar-
ships.

In 1900 our scheme of scholarships was supplemented by the establishment of a system of Probationary Bursaries, to be awarded in certain cases where the nominee of an institution appears not to be immediately qualified for a scholarship, but gives promise of becoming so after a year's experience of research work. Under the regulations drawn up for the award of these bursaries, the applicant has to satisfy the Scholarships Committee that he is not in a position to undertake post-graduate work without assistance, and

Pro-
bationary
Bursaries.

that there is not available for him any scholarship or similar fund at the disposal of the university or college.

Their
value.

A bursary is tenable for one year, and is of the value of £70, and the holder may be advanced to a scholarship at the end of his term, if, in the opinion of the Scholarships Committee, his work during his tenure of the bursary is sufficient to entitle him to the award. A list of the regulations for probationary bursaries is given in the Appendix (C, page 39).

Satisfactory
results of
scheme.

There will also be found in the Appendix (D, page 42) a complete list, in chronological order, of the scholars and bursars appointed since the establishment of the scheme in 1891, with brief particulars of their work as such, and information regarding their subsequent careers. This list, containing as it does the names of so many persons who have already distinguished themselves in their professions, furnishes ample evidence of the educational value of the scholarships. Moreover, we believe that for the majority of those whose careers have been attended with so much success, the scholarship came at a time when the special opportunities it afforded had a marked effect in raising the level upon which the scholar could employ his talents in the advancement of science. Indeed, many of the scholars themselves have informed us that, had it not been for the scholarship, they would have been compelled, for want of financial assistance, to discontinue the prosecution of science or to take up a position in which their natural ability would have found but little scope. We have further received the strongest evidence from persons interested in the progress of science throughout the empire of the beneficial influence which our scholarships have exerted, not only on the scholars themselves, who have obtained high positions in pure and applied science, but upon the colleges and universities which have benefited by our scheme, inasmuch as the scholarships have tended to raise the standard of the teaching in these institutions.

The successful working of our scheme, which was the first of its kind to be established in England and has led the way to the further provision of similar endowments in this country and abroad, confirms us in the belief that we are justified in continuing to dispose of a portion of our income towards this object.

We cannot omit to mention the valuable services rendered to us in an honorary capacity by the past and present members of the Scholarships Committee, which, presided over first of all by Lord Playfair, and then by Sir Henry Roscoe, has always

discharged its duties in a manner deserving of our special acknowledgment.*

In our last Report we described in detail the steps which had been taken to establish the Royal College of Music on our estate in the year 1882. We explained that the new College had been created as the result of a movement initiated by His late Majesty, when Prince of Wales, to supersede and develop the work, on a permanent basis, of the National Training School of Music, which had occupied, since 1876, the house on our estate given by the late Sir Charles Freake to the Prince of Wales as our President in trust for the nation. We referred to our decision to contribute the annual sum of £500 to the funds of the College, and stated that in view of the success which had attended the College and the insufficiency of accommodation afforded to the growing number of its pupils we had resolved to allocate a site, 200 feet square, on the northern portion of our estate, for a new building, the funds for the erection of which had been generously provided by Mr. Sampson Fox, of Leeds.

Royal
College of
Music.

Shortly after the issue of our Report, Sir Arthur Blomfield's design for the elevation of the building was approved by us, on the advice of Mr. Waterhouse, R.A. The first stone of the building was laid by the Prince of Wales on 8th July, 1890, and on its completion in 1892 we granted a lease† of the site for 999 years at a ground rent of £5 a year, the College being permitted to retain possession of the former premises as long as they should be required.

Erection
of new
building.

Since our last Report we have been represented on the Council of the College by the late Mr. Childers, the late Baron Ferdinand de Rothschild, and, since 1899, by Earl Spencer.

In March, 1903, the Council of the Royal College of Organists addressed to us a memorial asking for a lease of the house previously occupied by the Royal College of Music, and offering to

The Royal
College of
Organists.

* Past and Present Members of Scholarships Committee: Lord Playfair, 1890-1897, Chairman 1890-1896; Mr. Mundella, 1890-1897; Sir Henry Roscoe, since 1890, Chairman since 1896; Lord Kelvin, 1890-1907; Professor Huxley, 1890-1896; Sir Norman Lockyer, since 1890; Dr. William Garnett, since 1890; Lord Rayleigh, since 1896; Lord Courtney of Penwith, since 1898; Sir Arthur Rücker, since 1898; Dr. W. J. Russell, 1898-1908; Professor W. E. Ayrtton, 1904-1908; Professor J. N. Collie, since 1904; Sir Archibald Geikie, since 1906; Professor J. D. Cormack, since 1906; Dr. R. T. Glazebrook, since 1908; Dr. Horace Brown, since 1908.

† A copy of the lease to the Royal College of Music will be found in the Appendix (E, page 108).

render it suitable for their purpose by effecting alterations estimated to cost £3,000.

The work of the College appeared to us to be in complete accord with the objects for which the building had been originally erected by Sir Charles Freake, and we considered that the provision on our estate of a home for the College would come within the scope of our trust. On the completion, therefore, of the proposed improvements a lease* of the premises was granted for 99 years at a rent of £1 a year, on condition that the building should be used only for the purposes of the College.

Alexandra
House
Associa-
tion.

Our last Report gave an account of the erection, through the munificence of Sir Francis Cook, of the Alexandra House, a home for female students attending various institutions on the estate. The formation of a governing body and the mode of government were then under consideration and it was stated that, on these matters being settled with our approval, we should be prepared to grant a lease of the building and its site at a nominal rent and on suitable conditions. The scheme for the government of the Institution having subsequently received the approval of Her Majesty Queen Alexandra (when Princess of Wales) as President, of Sir Francis Cook, as Founder, and of ourselves, a lease† was granted in 1894 for a term of 999 years at a rent of £5 a year. The institution was incorporated under the Companies Acts as a Company limited by guarantee, with the name of the Alexandra House Association, and its general management was vested in a Council representative of the several parties interested and including three members appointed by ourselves.

The House has accommodation for one hundred students, who are comfortably provided for at the inclusive cost of about £66 a year.

Since its foundation in 1887 the House has received 1,290 students from all parts of the Empire, and the long list of candidates for admission promises a continuance of its prosperity.

We cannot close our reference to this institution without recording our sense of gratitude to the Bishop of Peterborough, the late Baron Ferdinand de Rothschild and the late Sir Joshua Fitch, as our original

* A copy of the lease to the Royal College of Organists will be found in the Appendix (F, page 111).

† A copy of the lease to the Alexandra House Association is given in the Appendix (G, page 113).

representatives on the Council of the Alexandra House ; and to Lord Farquhar, Canon Pennefather and the late Sir Fleetwood Edwards, who in 1909 accepted the invitation of His Royal Highness the Prince of Wales to represent our body on the Council for a further term of five years. Sir Caspar Purdon Clarke has been appointed to fill the vacancy occasioned by the recent death of Sir Fleetwood Edwards.

Since our last report, our financial arrangements with the Corporation of the Royal Albert Hall have received careful consideration, and we are glad to report that a settlement has been arrived at, which is satisfactory both to the Corporation and to ourselves.

At the time our last report was issued there was outstanding a sum of £4,000 advanced by us to the Corporation in 1876 to pay off the debt then due for the construction of the Hall.

In 1898 we provided the sum of £7,566 for the construction of a new south entrance, necessitated by the removal of the conservatory of the Royal Horticultural Society and of the northern ends of the Arcades, which, during their existence, formed a convenient entrance for visitors to the Hall approaching from the south side. Two-fifths of this expenditure was regarded as our share of the cost of the work and the remaining three-fifths, which amounted to £4,540, was treated as a loan to the Corporation.

We pointed out in our last report that the Act of Parliament passed in 1876, which authorised the annual levy of a seat rate, not exceeding £2 on each seat, for the purpose of maintaining the Royal Albert Hall, had imposed on us a heavy liability in respect of our 800 seats in the Hall. This liability was slightly reduced by the proportion of the annual profits derived from letting the Hall which we received from the Corporation in return for their use of our seats, but even so, the net charge falling upon us was unduly heavy, seeing that the Hall was not, in our opinion, exclusively used for such purposes of public interest as could be considered to justify the annual application of our funds towards its support.

Our negotiations with the Corporation, which had extended over several years, were brought to a definite issue in 1908, when the following agreement was made :—

The Corporation released us from all liability for seat rate as from 31st December, 1908, and we assigned our 800 seats to the Corporation for the remaining period of their lease of the Hall.

In return for the loss of income to the Corporation entailed by this

Royal
Albert
Hall.

Financial
negotia-
tions and
agreement.

arrangement, we relieved the Corporation of all liability in respect of the two loans already referred to, amounting together to £8,540, and we undertook to provide for the cost of further works connected with the completion of the south entrance to the Hall, and the construction of two vaults under the adjacent roadway, amounting to £3,505, treating two-fifths of this sum as our share of the expenditure and the remaining three-fifths as a loan to the Corporation, to be repaid in five annual instalments with interest at 4 per cent. The works in question have since been completed, and the Corporation have repaid to us two instalments of the loan, which became due in January, 1910 and 1911.

Imperial
Institute.

In our last Report we presented an account of the establishment of the Imperial Institute, and stated that we had appropriated nearly 7 acres of our land as a site for the building which was then in course of erection. Shortly after the opening of the building by Her Majesty Queen Victoria on 10th May, 1893, the Executive Committee of the Institute approached our body with a view to enlisting our support in the creation and maintenance of a department where the investigation and testing of the natural products of India and the Colonies could be carried on. As it seemed to us that such a department would have for its purpose the extension of the influence of science upon productive industry and would therefore come within the scope of our charter, we resolved to make an annual contribution of £260 for five years to be applied towards the salary of an investigator and assistant in the research laboratory. After the department had been in operation for the space of two years, and we had satisfied ourselves of the importance and value of the work conducted in the laboratory, we increased our annual contribution to £1,000, and further to £2,000 in 1898 and in each of the following years, until 1905, in which year the grants were to cease in accordance with a resolution passed in 1904.

Contribution to
Research
Department.

Trans-
ference of
Imperial
Institute to
H.M.
Govern-
ment.

By an Act of Parliament which came into operation on 1st January, 1903, the Imperial Institute was transferred to, and the control of the research department passed into the hands of, H.M. Government. In these circumstances, and in view of our previous determination that the grants should cease at the end of 1905, we did not consider ourselves called upon to continue our support to the laboratory, towards the expenses of which we had contributed a total sum of £18,520.

At the time of our last Report the Royal School of Art Needlework continued, on payment of a rent of £236 a year, in possession of temporary buildings in Exhibition Road, which it had occupied since its establishment in 1874.

Royal
School
of Art
Needle-
work.

In February, 1892, Her Royal Highness the Princess Christian of Schleswig-Holstein, the President of the School, addressed to us a letter asking for a grant of a site for a permanent building for the School, and suggesting as suitable for the purpose a piece of land at the corner of the Exhibition and Imperial Institute Roads. In consideration of the important work which the School was carrying on in its own department of art, in which it was recognised as a leader both in this country and abroad, we resolved to offer the Executive Committee of the School the land referred to, which was valued at £18,120, on a lease for 999 years at a ground rent of £200 a year.

The cost of a building commensurate with the importance of the site was estimated at £32,000, but for want of the necessary funds, building operations were deferred for several years. In March 1898 we learned that the Executive Committee of the School had succeeded in raising a building fund sufficient only to enable them to proceed with a portion of the design, and recognising that it would be desirable to ensure its completion without further delay we agreed to advance the necessary funds for the purpose. Our advances, amounting to £20,000, were secured, as to £16,000 by charging a redeemable rent of £480 a year, and as to £4,000 by a mortgage at 3 per cent. interest on the land and building; and on the completion of the building in 1901 a lease* was granted as from the 1st of September of that year. Arrangements were also made with our approval to underlet a portion of the building to the City and Guilds of London Institute for a term of twenty-one years at a rent of £600 a year, thereby providing an additional security for the payment of the interest on our loan.

Advance of
£20,000
for new
building.

In our last Report we stated that our Eastern and Western Exhibition Galleries, which had been built for our scheme of Annual International Exhibitions of the Fine Arts and recent Scientific Inventions held during the years 1871 to 1874, were under lease to the Government at rents amounting to £3,000 a year. The Eastern Galleries were occupied by the India Museum and the Western Galleries by portions of the collections under the charge of the Department of

Eastern
and
Western
Exhibition
Galleries.

* A copy of the lease to the Royal School of Art Needlework is given in the Appendix (H, page 116).

Science and Art. We referred to certain improvements that were being made to the Galleries by continuing them at the south ends up to the Imperial Institute Road and by building entrances both at the south ends and at the north ends abutting on the Prince Consort Road, which we had decided to construct across the upper portion of the main square of our estate. These improvements were ultimately completed at the joint expense of ourselves and of the Organising Committee of the Imperial Institute in accordance with the terms of their lease.

In the year 1890 we had under consideration a proposal for the establishment in our Eastern and Western Galleries of a representative collection of works of Fine Art of the British School on the general lines of the *Musée de Luxembourg* in Paris. Although the scheme was eventually abandoned by the Government, we refer to the subject here, as our desire to secure the establishment on our Estate of the British Art Collection led us to adopt a suggestion for connecting our Eastern and Western Galleries by a communicating gallery. We had disposed of all the land lying between the two Galleries with the exception of a piece from 9 feet to 10 feet wide at the south of the site granted to the Royal College of Music. We had, therefore, to approach the Organising Committee of the Imperial Institute, whose co-operation in the scheme was required in order that the necessary passage between the two ranges of Galleries might be constructed on a portion of the site of the Imperial Institute adjoining the narrow strip in our possession. As the result of our negotiations, the Organising Committee undertook, with the assistance of a grant from us of £3,000, and of a lease of the strip of land on the south side of the Royal College of Music, the erection of a cross gallery, 25 feet wide, connecting on its upper floor our Eastern and Western Galleries. The Committee also arranged to lease the upper floor to His Majesty's Government for a term of years corresponding with the lease of the Eastern and Western Galleries. As soon as this provision had been made for the erection of the cross gallery, we executed a lease of our Eastern and Western Galleries, and of the adjoining portions of the Arcades, to the Commissioners of Works for a term of fifty years from 1891, at a rent of £3,500 a year. We subsequently increased this rent by the sum of £154, representing 4 per cent. interest on the cost of tiling the ground floors of the galleries and relaying the fire mains, which improvements we had undertaken at the instance of the Commissioners of Works in accordance with the terms of their lease. The rent we have received for these galleries

Contribution to Imperial Institute for erection of communicating gallery.

Lease of Galleries to H.M. Government.

is equivalent to interest at approximately 3 per cent. on the sum we have expended on them.

We recently made arrangements with His Majesty's Office of Works for the surrender to us of the north end of the Eastern Exhibition Galleries, intersecting the two adjoining sites granted by us to the Imperial College of Science and Technology. This portion of the Galleries has been demolished so that the Imperial College, as explained below in our account of that Institution, might possess a compact piece of ground with a frontage on Exhibition and Prince Consort Roads on which to erect the new section of their buildings which is to be devoted to mining and engineering. In consideration of this surrender the total rent of £3,654 a year, payable for the galleries by the Office of Works, has been reduced by the sum of £720, the abatement representing the approximate rental value of the surrendered portion, as based on the existing rent.

Demolition
of north
end of
Eastern
Galleries.

In our last Report we described the plan we had adopted for appropriating a part of the upper portion of our unoccupied estate on the north of the Imperial Institute for private building purposes. We explained that after provision had been made for the construction across the estate of a new road (Prince Consort Road) from Exhibition Road to Queen's Gate, there would be laid out a central space forming an approach from the new road to the south side of the Royal Albert Hall having on each side of it two large sites suitable for mansions, and that on the south side of the road there would be two further plots that would also serve as sites for private buildings, one on each side of the land which we had allotted to the Royal College of Music. We stated that we had already accepted a tender for a building lease of the two sites on the north of the new road at a rent of £5,000 a year, and that we had given the lessee the option of taking the two remaining sites on the south of the road at a rent of £3,000 a year, which he subsequently exercised.

The de-
velopment
of the
estate.

Private
buildings.

The lessee proceeded to erect a block of flats on the plot on the east of the open space leading to the Royal Albert Hall, but the work had only been partially completed when the failure of the Liberator Building Society, which had undertaken to finance him, prevented the continuation of his contract. The building remained in its unfinished state for a considerable time, and as no measures were taken to continue the work, on which £120,000 had been expended, or to develop the remaining plots within the period provided for in the building agree-

Contract
for their
erection
unfulfilled

Removal of
statue of
Prince
Consort.

ment, we resumed possession in 1894. Meanwhile our new road, named after our illustrious first President, had been completed, and the statue of the Prince Consort had been removed from the position it formerly occupied in the centre of the Horticultural Gardens to its present position on the central space leading from Prince Consort Road to the Royal Albert Hall.

Albert
Court
Syndicate.

Our subsequent negotiations to re-let these building plots resulted in the execution of a building agreement with the Albert Court Syndicate, Limited, under which the Syndicate were to complete the half-finished building, and, subject to the fulfilment of the conditions specified in the agreement, were to be entitled to a lease of the site and building for ninety-nine years from 25th March, 1895, at a peppercorn rent for the first year, and at a rent of £2,750 for subsequent years, with the option of purchase. By virtue of their agreement, the Syndicate exercised in 1898 their option to purchase the freehold of the property for the sum of £82,500, being thirty years' purchase of the ground rent.

Laying out
of central
space
completed.

The other sites remained vacant and unoccupied, except for temporary purposes, until, as we explain elsewhere, they were appropriated, together with the site at the corner of Prince Consort and Exhibition Roads, for the purposes of the Imperial College of Science and Technology.

In 1898 we completed the laying out of the central space, but the work for the construction of the new entrance to the Albert Hall, which had been delayed in consequence of the afore-mentioned failure of the contractors to fulfil their undertaking, was only partially completed in that year through want of funds on the part of the Corporation. The recent completion of this work has already been referred to in the account of our transactions with the Albert Hall.

Grant of
site for a
church.

In 1901 we conveyed to the Ecclesiastical Commissioners, for the sum of £6,000, a portion of the plot west of the central space, containing about 12,000 superficial square feet, as a site for a church, which we had decided to grant on the most favourable terms in consequence of representations made to us by the incumbents of the district parishes of All Saints' and Holy Trinity, Knightsbridge.

Prince
Consort
Road taken
over by
Westmin-
ster City
Council.

In 1907 the Westminster City Council took over the control of the Prince Consort Road, but as a condition precedent to the transfer we had to provide for the cost of paving it with wood. We are at present in negotiation with the Westminster City Council for taking over the remainder of our property in the roadways converging on the courtyard of the Royal Albert Hall, and we have included in our

proposals to that body the transfer of the courtyard of the Royal Albert Hall.

In 1905 we agreed to grant a sum of £1,000 to the National Association for the Promotion of Technical and Secondary Education, of which body the late Duke of Devonshire was President. The Association performed, during its rather brief career, a most useful function as a centre for information regarding the developments of technical and secondary education throughout the country, and also as advisers to various local authorities in the difficult and important work entrusted to them by Parliament.

National Association for the Promotion of Technical and Secondary Education.

Our attention was drawn in 1902 to an important proposal for making provision at South Kensington for a great Central College of Applied Science. His late Majesty King Edward was much interested in this proposal, and it was by his command that the late Duke of Devonshire, the Earl of Rosebery, and Mr. Balfour addressed to us a Memorandum in which it was formulated. After alluding to the inadequate provision in this country for the most advanced training and research in various branches of science, especially in their application to industry, and emphasising the desirability of establishing a College on the lines of the Royal Technical High School, Berlin, the Memorandum indicated certain sites on our estate as most suitable for the erection of buildings that would be required in connection with the proposed Institution.

Imperial College of Science and Technology.

In the same year a striking report had been presented to the London County Council by its Technical Education Committee on the application of science to industry, in which it was clearly shown that several industries in this country had suffered, and were still suffering, from the inadequate provision made for advanced instruction and research in scientific technology. The report stated that the Committee were "unable to resist the conclusion that various branches of industry have, during the past twenty or thirty years, been lost to this country owing to the competition of foreign countries; that in many others our manufacturers have fallen seriously behind their foreign rivals; that London, in particular, has distinctly suffered; that these losses are to be attributed in no small degree to the superior scientific education provided in foreign countries."

Report of L.C.C. Technical Education Committee.

In June of the following year there appeared in the press Lord Rosebery's letter to the late Lord Monkswell, at that time Chairman of the London County Council, in which he alluded to the report

Lord Rosebery's letter to Lord Monkswell.

referred to, and outlined proposals for the institution in London of a centralised College which should provide the highest form of technical training, adding that he and certain other Trustees had received munificent offers of contributions towards the cost of building and equipment. As to the site, Lord Rosebery suggested that in view of the national importance of the scheme, we might be willing to place a site on our estate at the disposal of the trustees.

Government
enquiry by
Departmental
Committee.

Much public attention was directed to the proposal as a whole, and in April, 1904, the Board of Education appointed a Departmental Committee to enquire into the working of the Royal College of Science, including the Royal School of Mines, and to consider in what manner the buildings and appliances then in occupation, or in course of construction, might be utilised to the fullest extent for the promotion of higher scientific studies.

During the progress of the deliberations of this Departmental Committee we were made acquainted with the main outlines of the scheme which the Committee proposed, and we allowed our opinion to be known that the appropriation of a portion of our unoccupied estate to the furtherance of such a scheme would be in accordance with the objects of our trust, provided that funds for the erection, equipment, and proper maintenance of the building were forthcoming.

Preliminary
Report.

In a Preliminary Report, issued in February, 1905, the Departmental Committee, referring to the support that might be expected from private sources, stated "that the Commissioners of the 1851 Exhibition are prepared with their accustomed liberality where the advancement of higher education is concerned, to make available for a scheme, such as we have sketched, the additional site which will be required."

Final
Report.

The Departmental Committee submitted its Final Report in January, 1906, and its main conclusions were as follows :—

- "1. That the position of this country makes further provision for advanced technological education essential.
- "2. That the students, by whose advanced technological education the nation would profit, are not actually obtaining it to the extent which is desirable, and that this is due to :—
 - "(a) The lack of facilities for instruction in certain important subjects ;
 - "(b) The absence of such co-ordination among existing institutions of technological education as would permit the concentra-

tion of the more advanced courses in a limited number of institutions ;

- “(c) An insufficient appreciation, especially on the part of employers, of the value of such education.
- “ 3. That the opportunities for research in our technological institutions are inadequate to the industrial needs of the Empire, owing not to any want of ability on the part of the professors, but to the fact that much of their time is frequently absorbed in the giving of comparatively elementary instruction in Pure and Applied Science.
- “ 4. That in any institution in which the highest technological education is given, the equipment should be adequate for the purpose, and the staff should include, at the head of the several specialised branches of the work, men of the first rank in their profession.”

As a result of these conclusions they made recommendations which they summarised thus :—

Summary
of recom-
mendations.

- “ That the present combination of conditions at South Kensington points to the desirability of so utilising the resources there available, and of making additions to these, as to form on that site an institution of the highest standing, an institution which, with the staff, equipment and students that it will command, would go far towards remedying the above-mentioned defects.”

The first section of this Report concluded with the following words :—

- “ There is a special fitness in closing this Section of our Report with some appreciation of the work of another body, the Commissioners of the Great Exhibition of 1851, who, by the manner in which they have executed their trust throughout the half century of their existence, have been intimately associated with, and in a large measure responsible for, the educational developments of South Kensington, and who are now crowning their services to higher scientific education by their willingness to place an extensive site on their estate at the disposal of a scheme designed to carry out the objects contemplated in our Recommendations, subject, of course, to their approval of the form which the scheme shall eventually assume. This body received power, by their Supplemental Charter, to apply the

Apprecia-
tion of the
work of
the 1851
Commis-
sioners.

surplus arising from the Great Exhibition to "purposes strictly in connection with the ends of the Exhibition." The Commissioners, acting, till his death, under the Presidency of His Royal Highness the late Prince Consort, to whom more than to any other individual was due the conception of the ends of the Exhibition, as well as its success, have from the first set before themselves, in pursuance of their charter, the advancement of higher education, particularly in the sciences applicable to industry. It is a gratification to us that the conclusions at which we have arrived, and the Recommendations which we are about to submit, are in close conformity with the aims and policy of the Commissioners as indicated in their periodical reports and their public action."

Royal
College of
Science—
new
buildings.

The year which saw the publication of the Committee's Report was also notable for the opening of the new buildings of the Royal College of Science, which contain probably the most complete and best equipped laboratories for advanced study in Chemistry and Physics at present existent in this country. These buildings had been erected on a portion of the site of $4\frac{1}{2}$ acres which we sold to the Government in 1890 and to which we have already alluded in the beginning of this Report.

Steps were next taken to procure the grant of a Royal Charter for the incorporation of a new Institution on the lines which had been suggested, and we were given the opportunity of carefully considering the final details of the scheme before the Petition for the grant was presented to His late Majesty.

Imperial
College—
Commis-
sioners'
approval of
scheme.

We came to the conclusion that an Institution or group of associated Colleges with the name of the Imperial College of Science and Technology under a single Governing Body, such as had been indicated, would be in a strong position to promote the organisation of advanced education and research in Science as applied to Industry, and we decided that its establishment was in complete accord with the original intention of the Commission as expressed in their Supplemental Charter, which declares "that no measures could be so strictly in accordance with the ends of the Exhibition as those which might increase the means of industrial education, and extend the influence of science and art upon productive industry." We accordingly resolved to place at the disposal of the Governing Body, as soon as it should be formed, three unoccupied sites in Prince Consort Road, occupying about $3\frac{1}{2}$ acres.

Site of
 $3\frac{1}{2}$ acres
given.

His late Majesty was graciously pleased to grant to the Imperial College a Charter * of Incorporation on 8th July, 1907, and two members of our Commission (Viscount Esher, and Lieut.-Colonel the Right Hon. Sir Arthur Bigge) were appointed as members of the first Governing Body.

Grant of
Charter.

The Charter laid down that the purposes of the Imperial College "are to give the highest specialised instruction, and to provide the fullest equipment for the most advanced training and research in various branches of Science, especially in its application to Industry, and to do all or any of such other things as the Governing Body hereinafter constituted consider conducive or incidental thereto, having regard to the provision for those purposes which already exists elsewhere. And for these purposes the Governing Body, subject to the provisions of . . . the Charter, shall carry on the work of the Royal College of Science, and the Royal School of Mines, and may establish Colleges, or other Institutions, or Departments of instruction. And any Institution or Department so established and . . . the Central Technical College of the City and Guilds of London Institute shall be integral parts of the Imperial College . . ."

Purposes
of the
College.

Shortly after the establishment of the Imperial College we received an application from the Governing Body for a further site on our estate at South Kensington, which we had previously reserved for a proposed Institute of Medical Sciences, but which, owing to the abandonment of the scheme, was no longer required for the purpose. This plot, which lies to the north of the City and Guilds College, at the corner of Prince Consort Road and Exhibition Road, and comprises nearly three-quarters of an acre, we resolved to add to our other appropriation of land for the purposes of the Imperial College.

Appropriation of
further
sites.

In October, 1909, effect was given to these appropriations by the granting of a lease† of the four sites on our estate, abutting on Prince Consort Road, to the Imperial College for the period of 999 years at a yearly rental of £5.

Grant of
999 years'
lease.

More recently we have added a further site, containing about a quarter of an acre, which was occupied by the north end of the Eastern Exhibition Galleries housing the India Collection of the

Demolition
of part of
Eastern
Galleries
to allow
extension
of Engi-
neering
Depart-
ment.

* A copy of Charter, together with subsequent Orders in Council allowing amendment of same, will be found in the Appendix (J, page 120).

† A Copy of the lease will be found in the Appendix (K, page 186).

Victoria and Albert Museum. This building intersected the sites allotted to the Imperial College and greatly impaired their value, and so, by arrangement with His Majesty's Office of Works and the Board of Education, this portion of the Galleries was demolished, in order that the Imperial College might be in possession of a compact piece of ground on which to build the proposed extension to their Engineering Department.

The result of these grants to the Governing Body of the Imperial College of Science and Technology is that a total area of approximately $4\frac{1}{2}$ acres of our estate has been made available for the development of the College.

Foundation
stone of
new build-
ings laid by
King
Edward.

On 8th July, 1909, His late Majesty the King was graciously pleased to lay the foundation stone of the new buildings which are to be erected on the site, and are intended to afford accommodation for the departments of Mining, Metallurgy and Geology, and for an extension to the Engineering Department of the City and Guilds College. In the remarkable speech which His Majesty delivered on that occasion he gave expression to a sentiment with which we are so completely in accord that we cannot do better in concluding this paragraph of our Report than quote his very words :

His words.

"In recent years the supreme importance of higher scientific education has, I am happy to say, been fully recognised in England ; and as time goes on I feel more and more convinced that the prosperity, even the very safety and existence, of our country depend on the quality of the scientific and technical training of those who are to guide and control our industries."

Science
Museum—
proposed
establish-
ment of
permanent
building.

In July, 1909, the question of providing a permanent building at South Kensington for the accommodation of the national Science Collections was brought to the notice of H.M. Government by an influential deputation which waited upon the President of the Board of Education with a memorial * signed by many eminent men directly interested in Science and its application to industry.

The object of the deputation was to call attention to the crowded

* A Copy of the Memorial is given in the Appendix (L, page 188).

and unsatisfactory condition of the science collections at South Kensington, and to ask that these collections should have room for rearrangement and expansion, and that such a museum which represented the application of science to material should be placed by the Government in the same position as art and natural history.

In the early part of last year H.M. Government showed that they fully recognised the importance of the subject by appointing a Committee to prepare a scheme for the re-organisation and proper housing of the collections which are mainly contained in temporary buildings at South Kensington.

Committee
appointed
by H.M.
Government.

We welcomed this practical step on the part of the Government towards satisfying a national want, especially as we had long regarded the establishment of such a museum as an essential complement to the group of buildings already erected on our estate.

Our association with the Museums at South Kensington is of long standing, and has not been confined to the provision of sites. We presented to the nation the collection of animal products which formed an important feature of the South Kensington Museum when it was first established on our estate in 1857, and we also assisted at that time in the provision of the Museum building. The Royal Commission on Scientific Instruction and the Advancement of Science in their Fourth Report, 1874, recommended the establishment of a National Museum of Collections illustrating Science and Invention. Our desire to see this proposal realised led us to offer in 1876 a site, and funds to the extent of £100,000, for the erection of a permanent building. Although our offer, which was again repeated in 1878, was subsequently declined by the Government, we considered that the establishment of such an institution could only be a question of time, and we therefore continued to reserve a site for the purpose.

Commissioners'
former
offer of
£100,000.

But the pressure of a somewhat heavy mortgage debt and the encroachment made on our resources in favour of other public institutions induced us in 1890 to sell to the Government, for considerably less than its value, the site we had so long reserved for the new museum. We have already described this transaction in the earlier part of this Report.

The public attention directed to the new scheme and the strong evidence submitted in support of the proposals for a new museum by those who are best qualified to judge of the present needs of scientific education, convinced us that H.M. Government could not fail to appreciate the urgency of the matter. But realising that a

Offer
repeated
this year.

considerable sum of money would be required to complete the scheme, we caused H.M. Government to be informed that we were prepared to assist them in providing for the cost of the museum by a grant from our investments of £100,000, provided we were satisfied that sufficient funds were forthcoming to ensure the erection of a suitable building at South Kensington. The Government have recently expressed their pleasure in accepting our offer, but are not yet in a position to communicate to us the details of the scheme, which is still under the consideration of a Committee of the Board of Education.

We affix to this Report a plan (*at end of volume*) of the freeholds acquired by us in the years 1852 and 1853, and also a plan (*facing title page*) showing the present state of the development of the property.

Of the 87 acres originally purchased with the proceeds of the Great Exhibition of 1851, about 18 have been absorbed by roadways in the course of developing the estate, 17 have been appropriated for private residential purposes, and the remaining 52 have been devoted to public purposes.

List of
institutions
on the
property.

The following list of institutions now situated on the property will show how the main portion of the estate has been appropriated :

1. The Victoria and Albert Museum.
2. The Royal College of Art.
3. The Natural History Museum.
4. The Science Museum.
5. The India Museum.
6. The Royal Albert Hall.
7. The Royal College of Music.
8. The Royal College of Organists.
9. The Alexandra House.
10. The Royal School of Art Needlework.
11. The Meteorological Office.
12. The Imperial Institute, including headquarters of the University of London.
13. The Imperial College of Science and Technology, including
(1) the Royal College of Science ; (2) the Royal School of Mines ; (3) the City and Guilds College.

Finance
and
Accounts.

In continuation of the financial statement appended to our Seventh Report, we now submit (see Appendix M, page 146), a duly audited

Statement of our Receipts and Payments from 1st January, 1889, to 31st December, 1910, together with a statement of our Assets and Liabilities at the conclusion of that period (see Appendix N, page 148).

At the date of our last Report our mortgage debt amounted to £134,325. With the money realised by the sale of a portion of our estate to the Government in 1890, and by the sale of ground rents on the residential part of our estate, we succeeded in paying off the whole of this debt in the year 1893, when the estate was declared to be absolutely free from all charges for the first time since our dissolution of partnership with the Government in 1858.

Extinction
of mortgage
debt.

During the period covered by this Report, we have expended nearly £44,000 on improvements to the estate and buildings, structural alterations, road making, etc. We have advanced on loan to the Royal School of Art Needlework the sum of £20,000, and we have afforded financial support to the Royal Albert Hall to the extent of £32,000.

Improve-
ments to
estate.

After the extinction of the mortgage debt we invested our surplus income and the moneys realised by the sale of ground rents, with the result that in recent years our revenue has considerably increased, and we are thus enabled to give greater effect to the furtherance of the objects for which we were incorporated.

Increase of
revenue.

We showed in our last report that we had contributed to public purposes money and property amounting to over £800,000.

Contribu-
tions to
public
purposes.

Since that time about $4\frac{1}{2}$ acres of land, valued at £200,000, have been allotted to the Imperial College of Science and Technology; £105,000 has been provided for the creation and maintenance of our system of Scholarships and Bursaries; the sum of £18,520 has been contributed towards the upkeep of the Research Laboratory attached to the Imperial Institute, and subscriptions to the Royal College of Music, amounting to £11,000, have been devoted to musical education.

By the sale to the Government in 1890 of the $4\frac{1}{2}$ acres of land south of the Imperial Institute Road, at less than half its value, we presented to the nation a gift of more than £100,000. We have leased to the Royal School of Art Needlework a site worth at least £18,000 at a rent equal to about one-third of its annual value, and we have leased at a nominal rent to the Royal College of Organists the valuable site and house formerly occupied by the Royal College of Music. Thus our contributions to public purposes up to the present time approach the considerable sum of £1,250,000.

Consideration of
Future
Policy.

One of the objects which the Commissioners had in view in purchasing the Kensington Gore Estate with the surplus funds of the Great Exhibition, was to form a centre for such institutions as were engaged in the promotion of Science and Art, and more especially in their application to industry. The list of institutions, to which has been assigned the greater portion of the original estate, will show that this object has been successfully carried out.

When we became free from the encumbrance of a heavy mortgage debt we were enabled to devote a considerable portion of our income to Scholarships for Scientific Research. The remainder has been invested from time to time, so that we are now in a position to increase the scope of our activities.

We have accordingly considered the uses to which we should apply our funds in the immediate future. It is not contemplated to disturb the existing provision of Scholarships for purposes of research; but in our opinion a point has been reached when the capital resources of the Commission should no longer be applied to assist in the erection of buildings at South Kensington, and when the balance of the income derived from our present funds should be so used as to give a further impetus to scientific and artistic training consistent with the objects of our Charter. We believe that our income can be used to great advantage by the provision of Scholarships and Bursaries endowed not for all time, but for limited periods, and directed specially to encourage not only research work, but also the training of "Captains of Industry." We shall, moreover, endeavour to include in any extension that we may hereafter devise for our scheme of Scholarships some provision for encouraging the study of the Fine Arts on lines corresponding to those which have proved so efficacious in relation to Science and its applications. In such assistance as we may afford from time to time to the solution of problems affecting the industrial welfare of the nation, we shall have regard principally to schemes which from their nature require support from other than ordinary sources.

We shall, therefore, make it our duty to apply such sums as we think fit to the promotion of these objects, while avoiding as far as possible any further diminution of the corpus of our estates and invested funds, or any permanent alienation of our income.

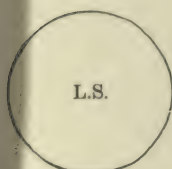
Conclusion.

We cannot conclude this Report without recalling that it is to the far-seeing wisdom of our First President, His Royal Highness the Prince Consort, by whose advice the surplus funds of the Great Exhibition were invested in the purchase of the Kensington Gore Estate, that

we owe in large measure our present position with its possibilities of increasing usefulness ; and we feel confident that our future policy carried out on the lines we have suggested, will prove in its results not unworthy of those great ends which His Royal Highness had in view.

It only remains for us humbly to express the hope that we may merit from His Majesty the same confidence as has ever in the past been reposed in us by the Sovereign, and to pray that His Majesty may deign to vouchsafe to us, as King, that gracious interest which, as our President, he always showed in our endeavours to advance the cause of Science and Art for the promotion of which we were incorporated.

Given under our Corporate Seal at St. James's Palace, this thirteenth day of March, 1911.

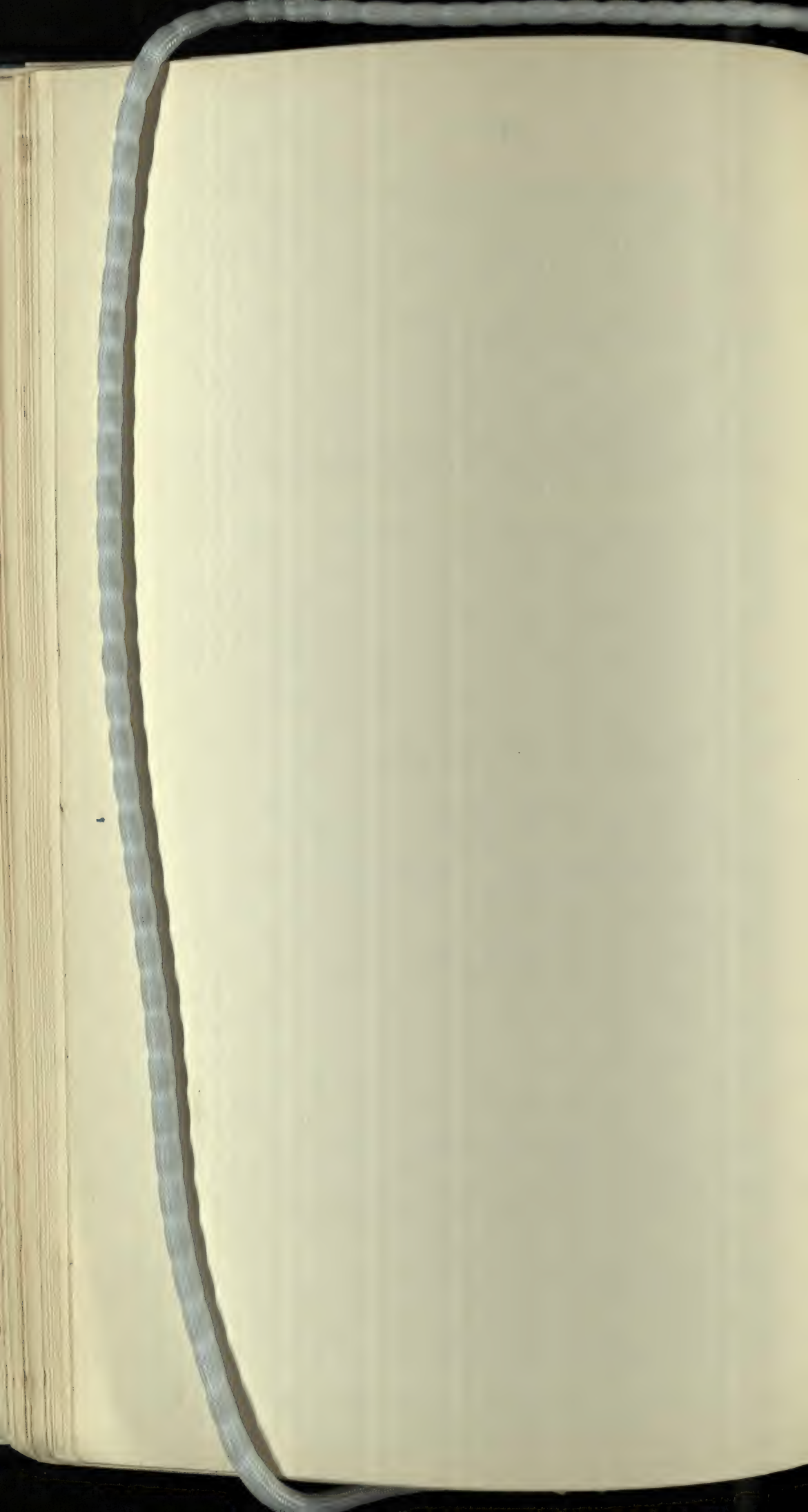


EVELYN SHAW,
Secretary.

ARTHUR FREDERICK.
ARTHUR.
CHRISTIAN.
NORFOLK.
ARGYLL.
LANSDOWNE.
ROSEBURY.
BEAUCHAMP.
SPENCER.
ESHER.
MORLEY OF BLACKBURN.
RAYLEIGH.
WELBY.
JAMES OF HEREFORD.
COURTNEY OF PENWITH.
H. H. ASQUITH.

D. LLOYD GEORGE.
SYDNEY BUXTON.
FRANCIS MOWATT.
G. H. MURRAY.
HENRY E. ROSCOE.
D. M. PROBYN.
ARTHUR BIGGE.
ARCH. GEIKIE.
CHARLES L. RYAN.
NORMAN LOCKYER.
ROBERT L. MORANT.
F. G. OGILVIE.
WM. GARNETT.
ALEX. SIEMENS.
W. W. WATTS.

[His Grace the DUKE OF FIFE is absent from Europe.]



APPENDICES.

APPENDIX A.

(See Report, page 6.)

LIST OF THE ROYAL COMMISSIONERS FOR THE EXHIBITION OF 1851
FROM THE FORMATION OF THE COMMISSION TO THE PRESENT TIME.

PRESIDENTS OF THE ROYAL COMMISSION.

His Royal Highness the Prince Consort. Appointed 3rd January, 1850. *Died* 14th December, 1861.

Succeeded by

The Right Honourable Edward Geoffrey, 14th Earl of Derby. Appointed Member of the Commission 3rd January, 1850. Elected President 16th April, 1864. *Died* 1869.

Succeeded by

His Royal Highness the Prince of Wales. Elected Member of the Commission and President 18th February, 1870. Came to the Throne 22nd January, 1901. *Died* 6th May, 1910.

Succeeded by

His Royal Highness the Prince of Wales. Elected Member of the Commission 15th June, 1896. Elected President 10th February, 1903. Came to the Throne 6th May, 1910.

Succeeded by

His Royal Highness Prince Arthur of Connaught. Elected Member of the Commission and President 13th March, 1911.

MEMBERS OF THE ROYAL COMMISSION.

- Elected 16 Feb. 1872 *His Royal Highness the Duke of Edinburgh.
 „ 16 Feb. 1872 His Royal Highness Prince Arthur (Duke of Connaught).
 „ 21 Oct. 1872 *His Royal Highness the Duke of Cambridge.
 „ 18 Feb. 1870 His Royal Highness the Prince Christian [*Acting Chairman of General Purposes Committee 7th February, 1871, to 16th June, 1871. Chairman of Board of Management 1881 to 1904.*]
 „ 18 July 1870 *His Serene Highness the Duke of Teck.
 Appointed by Royal Commission—
 3 Jan. 1850 . . *Duke of Buccleuch.
 „ . . *Earl of Rosse.
 „ . . *Earl Granville.
 „ . . *Earl of Ellesmere.
 „ . . *Lord John Russell (Earl Russell).
 „ . . *Sir Robert Peel.
 „ . . *Mr. Labouchere (Lord Taunton).
 „ . . *Mr. Gladstone.
 „ . . *Sir Richard Westmacott.
 „ . . *Mr. Baring.
 „ . . *Mr. Barry (Sir Charles Barry).
 „ . . *Mr. Bazley (Sir Thomas Bazley).
 „ . . *Mr. Cobden.
 „ . . *Mr. Eastlake (Sir Charles Eastlake).
 „ . . *Mr. Thomas Gibson.
 „ . . *Mr. John Gott.
 „ . . *Mr. Loyd (Lord Overstone).
 „ . . *Mr. Pusey.
 „ . . *Mr. Thompson.

* Deceased.

Appointed by Royal Charter—

	15 Aug.	1850	*Mr. Robert Stephenson.
Elected	5 Mar.	1851	*Sir Charles Lyell.
"	14 Jan.	1852	*Sir William Cubitt.
"	24 April	1852	*Mr. Dilke (Sir Charles Wentworth Dilke).
"	24 April	1852	*Mr. John Shepherd.
"	24 April	1852	*Mr. Alexander Spearman.
"	29 June	1852	*Mr. Walter Coulson.
"	25 Jan.	1853	*Mr. Disraeli (Earl of Beaconsfield).
"	30 June	1855	*Sir Roderick Murchison.
"	14 Feb.	1857	*Lord Portman (Viscount Portman).
"	1 May	1858	*Sir George Cornwall Lewis.
"	3 May	1861	*Marquis of Chandos (Duke of Buckingham)
"	3 May	1861	*Mr. Fairbairn (Sir Thomas Fairbairn).
"	3 May	1861	*Mr. Thring (Lord Thring).
"	30 June	1863	*Mr. Lowe (Viscount Sherbrooke).
"	30 June	1863	*Sir Stafford Northcote (Earl of Iddesleigh).
"	30 June	1863	*Sir Morton Peto.
"	30 July	1866	*Mr. Bruce (Lord Aberdare).
"	30 July	1866	*Sir Francis Grant.
"	8 July	1869	Mr. Bowring [<i>formerly Treasurer and Member of Finance and General Purposes Committees</i>].
"	8 July	1869	*General the Hon. Charles Grey.
"	8 July	1869	*Sir Francis Sandford (Lord Sandford).
"	8 July	1869	*Dr. Lyon Playfair (Lord Playfair).
"	18 Feb.	1870	*Edward Henry, 15th Earl of Derby.
"	12 May	1870	*Major-General Sir Thomas Biddulph.
"	12 May	1870	*Colonel Ponsonby (Sir Henry Ponsonby).
"	18 July	1870	*Earl de Grey and Ripon (Marquis of Ripon).
"	18 July	1870	*Sir William Tite.
"	18 July	1870	*Mr. Beresford Hope.
"	13 Aug.	1872	*Sir William Anderson.
"	13 Aug.	1872	*Mr. Cole (Sir Henry Cole).
"	21 Oct.	1872	Marquis of Lansdowne [<i>formerly Member of General Purposes Committee and Board of Management</i>].
"	22 Feb.	1873	*Earl of Carnarvon.
"	22 Feb.	1873	*Mr. Childers.
"	22 Feb.	1873	*Sir Anthony de Rothschild.
"	22 Feb.	1873	*Sir Richard Wallace.
"	22 Feb.	1873	*Sir Henry Bartle Frere.
"	8 Dec.	1873	*General Sir William Knollys.
"	8 Dec.	1873	Major-General Probyn (Sir Dighton Probyn) [<i>Treasurer</i>].
"	25 Mar.	1874	*Earl Spencer.
"	9 May	1874	Earl of Rosebery [<i>formerly Member of Board of Management</i>].
"	24 May	1876	*Marquis of Salisbury.
"	20 July	1877	*Admiral Sir Alexander Milne.
"	20 July	1877	†Colonel Ellis (Sir Arthur Ellis).
"	29 July	1878	*Duke of Sutherland.
"	26 July	1879	*Earl of Dudley.
"	26 July	1879	*Sir Frederick Leighton (Lord Leighton).
"	12 July	1881	*Lord Selborne (Earl of Selborne).
"	12 July	1881	*Sir Sydney Waterlow.
"	12 July	1881	*Mr. Bramwell (Sir Frederick Bramwell).
"	25 July	1883	*Mr. Mundella.
"	12 Mar.	1887	*Lord Herschell.
"	16 May	1889	*Mr. Fowler (Sir Henry Fowler and Viscount Wolverhampton) [<i>late Chairman of Board of Management</i>].
"	27 July	1891	Duke of Fife.
"	27 July	1891	*Baron Ferdinand de Rothschild.
"	27 July	1891	*Sir William Thomson (Lord Kelvin).
"	27 July	1891	Sir Henry Roscoe [<i>Member of Board of Management and Chairman of Scholarships Committee</i>].
"	27 July	1891	*Professor Huxley.
"	27 July	1891	Marquis of Lorne (Duke of Argyll).
"	27 July	1891	Professor Lockyer (Sir Norman Lockyer) [<i>Member of Scholarships Committee</i>].
"	15 June	1896	Lord Welby.

* Deceased.

† Resigned in 1889 on being appointed Secretary of the Royal Commission; died 1907.

Elected	15 June	1896	Lord Rayleigh [<i>Member of Scholarships Committee</i>].
"	15 June	1896	Mr. Leonard Courtney (Lord Courtney of Penwith) [<i>Member of Scholarships Committee</i>].
"	15 June	1896	*Sir Fleetwood Edwards [<i>Late Member of Board of Management</i>].
"	15 June	1896	*Sir John Millais.
"	15 June	1896	Sir Charles Ryan.
"	15 June	1896	*Sir Edward Hamilton.
"	26 July	1897	*Sir Henry Campbell-Bannerman.
"	26 July	1897	Dr. Garnett [<i>Member of Scholarships Committee</i>].
"	25 July	1898	Lord James of Hereford [<i>Member of Board of Management</i>].
"	25 July	1898	Mr. Asquith.
"	31 July	1899	Mr. Spencer (Viscount Althorp and Earl Spencer).
"	10 Feb.	1903	Viscount Esher [<i>Chairman of Board of Management</i>].
"	10 Feb.	1903	Sir Francis Mowatt [<i>Member of Board of Management</i>].
"	10 Feb.	1903	†Sir Arthur Bigge [<i>Member of Board of Management</i>].
"	10 July	1908	Duke of Norfolk.
"	10 July	1908	Sir Archibald Geikie [<i>Member of Scholarships Committee</i>].
"	10 July	1908	Sir George Murray.
"	10 July	1908	Sir Robert Morant.
"	10 July	1908	Mr. Ogilvie [<i>Member of Board of Management</i>].
"	13 Mar.	1911	Sir Arthur Rücker [<i>Member of Board of Management and of Scholarships Committee</i>].
"	13 Mar.	1911	Dr. R. T. Glazebrook [<i>Member of Board of Management and of Scholarships Committee</i>].

EX-OFFICIO COMMISSIONERS.

Appointed by Royal Commission—

	3 Jan. 1850	Chairman of the Court of Directors of the East India Company. Ceased 1858.
"	"	President of the Geological Society. (<i>Professor W. W. Watts</i>)
"	"	President of the Institution of Civil Engineers. (<i>Mr. Alexander Siemens</i>)
Elected	23 Feb. 1853	Lord President of the Council. (<i>Viscount Morley of Blackburn</i>)
"	23 Feb. 1853	First Lord of the Treasury. (<i>Mr. Asquith</i>)
"	23 Feb. 1853	Chancellor of the Exchequer. (<i>Mr. Lloyd George</i>)
"	23 Feb. 1853	President of the Board of Trade. (<i>Mr. Sydney Buzton</i>)
"	23 Feb. 1853	First Commissioner of Works. (<i>Earl Beauchamp</i>)
"	14 Feb. 1857	Vice-President of the Committee of Council on Education. Ceased 1899.

APPENDIX B.

(See Report, page 9.)

DEED OF CONVEYANCE to H.M. GOVERNMENT of the SITE SOUTH of the IMPERIAL INSTITUTE ROAD.

THIS INDENTURE, made the 31st day of March 1890, between the Commissioners for the Exhibition of 1851, incorporated by and for the purpose of two several Royal Letters Patent under the Great Seal dated respectively the 15th day of August 1850 and the 2nd day of December 1851 (hereinafter called "the Exhibition Commissioners"), of the one part, and the Commissioners of Her Majesty's Works and Public Buildings, acting in execution of the Act 15th and 16th years of Her Majesty, Chapter 28 (hereinafter called "the Commissioners of Works"), of the other part: WHEREAS the Exhibition Commissioners are seised for an estate in fee simple in possession of the lands, buildings and hereditaments hereinafter described and intended to be hereby granted (being

* Deceased.

† Resigned in 1907 on being appointed Secretary of the Royal Commission; re-elected in 1911, after resigning Secretaryship.

the lands, buildings and hereditaments coloured pink on the plan drawn hereon) free from incumbrances: AND WHEREAS the Commissioners of Works are seised for an estate in fee simple in possession of the lands and hereditaments situate on the east side of the road known as Queen's Gate (being the lands coloured blue on the said plan drawn hereon), which said lands and hereditaments were, with other lands and hereditaments, conveyed to the Commissioners of Works by the Exhibition Commissioners by an Indenture dated the 14th day of September 1864, subject to a stipulation that the said lands and hereditaments thereby conveyed should be permanently used for purposes connected with science or the arts: AND WHEREAS the Commissioners of Works have, with the consent of the Lords Commissioners of Her Majesty's Treasury, agreed with the Exhibition Commissioners for the purchase, out of moneys voted by Parliament for that purpose, of the said lands, buildings and hereditaments coloured pink on the said plan at or for the price of £100,000, and on the treaty for such purchase it was stipulated by the Exhibition Commissioners that the said lands, buildings and hereditaments so to be purchased should be permanently used for purposes connected with science or the arts, and it was stipulated on the part of the Commissioners of Works that so much of the lands and hereditaments comprised in the said Indenture of the 14th day of September 1864, as is coloured blue on the said plan hereinbefore referred to, should be released from the stipulation that the same should be permanently used for those purposes to which the Exhibition Commissioners assented on the Commissioners of Works agreeing to enter into the covenants hereinafter contained restricting the user of the last-mentioned lands and hereditaments to such extent as hereinafter appears: NOW THIS INDENTURE WITNESSETH that for effectuating this said Agreement and in consideration of the sum of £100,000 paid by the Commissioners of Works to the Exhibition Commissioners at or immediately before the execution of these presents, the receipt of which said sum of £100,000 the Exhibition Commissioners do hereby acknowledge, the Exhibition Commissioners, as beneficial owners, do hereby grant and convey unto the Commissioners of Works, their successors and assigns, ALL that piece or parcel of land, situate in the parishes of St. Margaret, Westminster, and St. Mary Abbott, Kensington, respectively, in the county of Middlesex, bounded on the north by a new road called or intended to be called the Imperial Institute Road, on the east in part by Exhibition Road and in part by land conveyed to the Commissioners of Works by the said Indenture of the 14th day of September 1864, on the south by land comprised in the said Indenture of the 14th day of September 1864, and on the west in part by land comprised in the said Indenture of the 14th day of September 1864 and in part by other land the property of the Exhibition Commissioners, as the same with the dimensions and abuttals thereof is delineated on the said plan drawn on these presents and thereon coloured pink: Together with all the erections and buildings situate on the said land and belonging to the Exhibition Commissioners and together with the appurtenances: To have and to hold the said premises unto and to the use of the Commissioners of Works, their successors and assigns, for ever, to be by them held for the public service according to the provisions of the said Act of the 15th and 16th years of Her Majesty, Chapter 28: PROVIDED ALWAYS NEVERTHELESS, and it is hereby agreed and declared, that the said lands and hereditaments, hereby conveyed, shall be permanently used for a purpose or purposes connected with science or the arts, but this agreement shall not be deemed to oblige the Commissioners of Works, their successors and assigns, to retain the said buildings now standing on the said land: AND THIS INDENTURE

FURTHER WITNESSETH, that for further effectuating the said Agreement, the Exhibition Commissioners do hereby release so much of the said land comprised in the said Indenture of the 14th day of September 1864, as is coloured blue on the said plan drawn hereon, from the operation of a stipulation, that the same shall be permanently used for a purpose or purposes connected with science or the arts. And it is hereby agreed and declared, that the Commissioners of Works do hereby covenant and agree with the Exhibition Commissioners that they, their successors or assigns, will not at any time hereafter erect or cause or suffer to be erected on the said land, coloured blue on the said plan, any messuage, buildings or other erections of any sort or kind to be used for, nor will use or permit the said land to be used for the purpose of trade or business, and will not do or cause to be done on the same land any act, matter, or thing which may be or become a source of annoyance, damage, or inconvenience to the estate of the Exhibition Commissioners or to any of their tenants. And the Exhibition Commissioners hereby acknowledge the right of the Commissioners of Works to the production of the documents of title mentioned in the Schedule, subjoined or annexed to these presents, and to delivery of copies thereof, and hereby undertake for the safe custody thereof. IN WITNESS, &c.

APPENDIX C.

(See Report, page 11.)

GENERAL REGULATIONS FOR SCIENCE RESEARCH SCHOLARSHIPS.

1. The Scholarships are intended, not to facilitate attendance on ordinary collegiate studies, but to enable Students who have passed through a College curriculum and have given distinct evidence of capacity for original research, to continue the prosecution of Science with the view of aiding its advance, or its application to the industries of the country.
2. The Scholarships are of £150 a year, and are ordinarily tenable for two years, the continuation for the second year being dependent on the work done in the first year being satisfactory to the Scholarships Committee.
3. A limited number of the Scholarships are renewed for a third year where it appears that the renewal is likely to result in work of scientific importance.
4. Candidates are recommended by the governing bodies of the Universities and Colleges to which Scholarships are allotted, and the recommendations are considered and decided upon by the Scholarships Committee.
5. The candidate must be a British subject.
6. The Candidate must have been a *bonâ fide* student of Science in a University or College in which special attention is given to scientific study for a term of three years.

7. The Candidate shall be eligible for a Scholarship provided (1) that he has spent the last full academic year immediately prior to the time of nomination as a student in any faculty or scientific department of that Institution by which he is nominated, or (2) that he has been a student of such Institution for a full academic year ending within twelve months prior to the time of nomination, and since ceasing to be such student has been engaged solely in scientific study.

The word "student" in the preceding regulation must be understood as comprehending one engaged in undergraduate or post graduate work.

8. The Candidate must indicate high promise of capacity for advancing Science or its applications by original research. Evidence of this capacity is strictly required, this being the main qualification for a Scholarship. The most suitable evidence is a satisfactory account of a research already performed, and the Commissioners will decline to confirm the nomination of a Candidate unless such an account is furnished, or there is other equally distinct evidence that he possesses the required qualification.

9. A Candidate whose age exceeds 30 will only be accepted under very special circumstances.

10. A Scholarship may be held at any University in England or abroad, or in some other institution to be approved of by the Commissioners. Every Scholar is, in the absence of special circumstances, required to proceed to an institution other than that by which he is nominated.

11. The principal work of a Scholar must be a research in some branch of Science, the extension of which is important to the national industries.

12. Scholars are required to devote themselves wholly to the objects of the Scholarships, and are forbidden to hold any position of emolument.

13. Scholars are required to furnish reports of their work at the end of each year of the tenure of their Scholarships. At the expiration of each Scholarship the reports of the Scholar are referred to an eminent authority on the subject treated of, who furnishes an opinion thereon to the Commissioners.

14. The Scholarship stipend is payable half-yearly in advance, but £25 is reserved from the fourth payment until the Scholar has made a satisfactory final report.

REGULATIONS FOR PROBATIONARY BURSARIES.

1. A Bursary is intended for the maintenance for one year of a Student who proposes to become a Science Research Scholar under the scheme of the Commissioners at the expiration of the period covered by the Bursary, in order to afford him an opportunity of proving his power to carry on independent research. The authorities of an institution recommending a Student for a Bursary will be presumed to have satisfied themselves that he *bonâ fide* intends to accept a Scholarship if subsequently appointed to one.

2. An applicant for a Bursary must, except as to evidence of capacity for original research, fulfil all the conditions for the time being laid down for appointment to a Science Research Scholarship. He must have passed a B.Sc. Examination (or its equivalent) with Honours before the commencement of the period covered by the Bursary. His age must not exceed 25, except under very special circumstances.

3. A Bursary is tenable for one year, and is of the value of £70, payable by half-yearly instalments in advance, the second instalment being payable on the receipt of a certificate from the Professor, under whom the holder has been working, that he has faithfully performed his duties.

4. A Bursary will be awarded on condition that the nominating institution undertakes to provide for the holder facilities for conducting research, and the requisite supervision, free from charge and incidental expenses.

5. The holder of a Bursary shall devote himself exclusively to research, and work preparatory to research, and none of his time shall be spent in assisting a teacher in his duties. The holder of a Bursary must not hold any other Bursary, Scholarship, or position of emolument.

6. The holder of a Bursary shall on or before 1st May in the year of tenure send to the office of the Commissioners an account of the research work performed by him, together with an application for appointment to a Science Research Scholarship. The Commissioners will expect to receive from the Professor, under whom the holder of the Bursary shall have worked, a confidential opinion as to his capacity and qualifications.

7. The Commissioners may either appoint the holder of a Bursary to a Science Research Scholarship, or at their absolute discretion decline to appoint him, and in the latter case shall not be called upon to state any ground for their decision.

8. A Science Research Scholarship, if granted, shall be held on the usual conditions attached to the Scholarships, or on any special conditions which the Commissioners may impose. But a Scholar who previously to appointment has held a Bursary shall not be eligible for exceptional renewal of his Scholarship for a third year.

APPENDIX C. (*continued*).(*See Report, page 11.*)LIST OF INSTITUTIONS INVITED TO RECOMMEND CANDIDATES
FOR SCIENCE RESEARCH SCHOLARSHIPS.NUMBER OF INVITATIONS
ISSUED ANNUALLY.

<i>Alternately</i>	1	1.	University of Edinburgh.
	1	2.	University of Glasgow.
	1	3.	University of St. Andrews (including University College, Dundee).
	1	4.	University of Aberdeen.
	1	5.	University of Birmingham (formerly Mason College of Science, Birmingham).
	1	6.	University of Bristol (formerly University College, Bristol).
	1	7.	University of Leeds (formerly Yorkshire College, Leeds).
	1	8.	University of Liverpool (formerly University College, Liverpool.)
	1	*9.	University of London.
<i>Alternately</i>	1	10.	Victoria University of Manchester (formerly Owens College, Manchester).
	1	11.	Armstrong College, Newcastle-upon-Tyne (formerly Durham College of Science).
	1	12.	University College, Nottingham.
	1	13.	University of Sheffield (formerly Firth College, Sheffield).
	1	14.	University College of Wales, Aberystwyth.
	1	15.	University College of North Wales, Bangor.
	1	16.	University College of South Wales and Monmouthshire, Cardiff.
<i>In each year</i>	2	17.	Royal College of Science for Ireland, Dublin. [Belfast].
	2	18.	Queen's University of Belfast (formerly Queen's College, Belfast).
	2	19.	University College, Cork (formerly Queen's College, Cork).
	2	20.	University College, Galway (formerly Queen's College, Galway).
<i>Canada.</i>			
<i>Alternately</i>	1	21.	McGill University, Montreal.
<i>Alternately</i>	1	22.	University of Toronto.
	1	†23.	Queen's University, Kingston, Ontario.
	1	†24.	Dalhousie University, Halifax, Nova Scotia.
<i>Australia and New Zealand.</i>			
<i>In each year</i>	2	25.	University of Sydney.
	2	26.	University of Melbourne.
	2	27.	University of Adelaide.
	2	28.	University of New Zealand.
<i>South Africa.</i>			
	1	‡29.	South African College, Cape Town.
	20		

* University College, London, was included in the scheme of scholarships in 1892, but on its incorporation with the University of London, in 1907, the nomination was placed at the disposal of the latter body.

† Included in the scheme in 1892.

‡ Included in the scheme in 1903

APPENDIX D.

(See Report, page 12.)

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
1. Shields, John, B.Sc., Ph.D. <i>Nominated by University of Edinburgh</i>	1891-3	Universities of Leipzig and Stockholm and University College, London	Chemical Physics.—Investigations on the surface tensions and molecular complexity of liquids and on the hydrolysis of aqueous salt solutions	D.Sc. Edinburgh	1893-8, Private Assistant to Dr. Mond, in University College, London, in Davy-Faraday Research Laboratory, and in Dr. Mond's private laboratories; also for a short time Assistant Manager in the Brunner-Mond Alkali Works. 1899-1901, Resident Scientific and Technical Adviser to the Scottish Cyanide Co., Ltd., Leven, Fife. 1901-3, again acted as Assistant to Dr. Mond. Since 1903 Chief Chemical and Metallurgical Engineer to the Rio Tinto Co., Ltd., in London and Spain. Has been Examiner in Chemistry to the University of Aberdeen and the Institution of Civil Engineers, also Assistant Examiner in Chemistry to the Science and Art Department. Delivered the lectures on Physical Chemistry for one year at the Royal College of Science.
2. Gray, James H., B.Sc. (London) <i>Nominated by University of Glasgow</i>	1891-4	University of Glasgow	Electricity and Magnetism.—Thermal conductivity of metals and other researches in electricity and magnetism	M.A. Glasgow	1895, called to the Bar, and practises chiefly in patent cases involving scientific knowledge. 1906-9, Associate Member of Council, Institution of Electrical Engineers. March 1908, leading Counsel for the Home Office on the inquiry held to consider proposed electrical rules (since issued) under the Factory Acts.
3. Frew, William <i>Nominated by University of St. Andrews</i>	1891-3	University of Munich	Chemistry.—Chemistry of fermentation. Relations of asphyxial to isoquinoline and acuminarin groups	Ph.D. Munich (1893)	Deceased July 1910. 1893-4, worked at Munich in the Versuchstation für Brauerei, the Gabelsbergerbrauerei and the Thomasbrauerei. 1894-1902, Scientific and Technical Assistant to the University of Edinburgh, Glasgow, and the Wellpark Brewery, Glasgow.

4. Sudborough, John Joseph <i>Nominated by</i> Mason Science College, Birmingham (now University of Birmingham)	1891-4	University of Heidelberg	Chemistry. — Stereoisomeric stilbene derivatives. Diortho - substituted benzoic acids. Esterification of organic acids	Ph.D. Heidelberg (1893). D.Sc. London (1895)	1905, Scientific Adviser to Whiteway & Co., Cider Makers, Whimble, Devon. 1906-1910, Scientific Adviser to Wm. Evans & Co., Ltd., Cider Makers, Hereford, and Hele, Devon.
5. Ewan, Thomas, B.Sc., Ph.D. (Munich) <i>Nominated by</i> Owens College, Manchester (now Victoria University of Manchester)	1891-4	Owens College and University of Amsterdam	Physical Chemistry. — Absorption spectra of various solutions and other researches in physical chemistry	M.Sc. Victoria (1896)	1895-1901, Lecturer in Chemistry, University College, Nottingham. Since 1901, Professor of Chemistry, and since 1908, Dean of Faculty of Science, University College of Wales, Aberystwyth.
6. Barton, Edwin H., B.Sc. <i>Nominated by</i> University College, Nottingham	1891-3	Royal College of Science, London, and University of Bonn	Electricity and Magnetism. — Temperature variation of magnetic permeability of magnetite. Electrical interference phenomena, &c.	D.Sc. London (1894), F.R.S.E. (1895), A.M.I.E.E., F.Ph.S.L.	1894-6, Demonstrator in Chemistry, Yorkshire College. 1896-1900, Research Chemist to the Aluminium Co. of London and Oldbury. Since 1900 with the Cassel Cyanide Co., Glasgow.
7. Fawcett, Frederick Benjamin <i>Nominated by</i> University College, Bristol (now University of Bristol)	1891-3	University College, Bristol	Electricity and Magnetism. — Propagation of magnetism through iron. Investigation of the electrical resistance of thin metallic films with a view to the construction of standard resistances of high value	Associate, University College, Bristol (1894)	Worked for several years in the x-Ray Laboratory and also in the Physics Laboratory at University College, Bristol.
8. McConnell, William, A.Sc. <i>Nominated by</i> Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)	1891-3	Durham College of Science	Physics. — Investigation of the gases enclosed in coal and coal-dust		Deceased. Formerly in the employ of the Newcastle Breweries, Ltd.
9. Ingle, Harry, B.Sc. <i>Nominated by</i> Yorkshire College, Leeds (now University of Leeds)	1891-4	University of Munich	Chemistry. — Researches on chemistry of flames and on para-acetylacetonophenon and para-diaethylenbenzol and on some derivatives of tetrazol	Ph.D. Munich (1893), F.I.C. (1895), D.Sc. Leeds (1905)	1895-6, Lecturer on Chemistry, Hull Technical School. 1896-1909, Chief Chemist to Messrs. Barry, Ostlere & Co. (now Barry, Ostlere & Shepherd), linoleum manufacturers, Kirkcaldy. Now consulting Chemist in Leeds. Has published a book on the Chemistry of Fire and Fire Prevention.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
10. Holt, Robert <i>Nominated by University College, Liverpool (now University of Liverpool)</i>	1891-3	University College, Liverpool	Mechanical Engineering.—Thermodynamics of the steam engine. Effect of heat on the strength of springs and of metals generally	—	Vice-Principal and Professor of Engineering in the Engineering College, Gizeh, Egypt. Received decoration of 4th Osmanieh from H.H. the Khedive of Egypt. Member of Bridges Commission, Egyptian Government, Cairo. Consulted as expert on structure of Government buildings for the Egyptian Government. Acted as Government Inspector of Delta Light Railway Company. President of Fire Commission, and advising expert on school buildings to Ministry of Public instruction.
11. Hoyles, Annie J., B.Sc. <i>Nominated by Firth College, Sheffield (now University of Sheffield)</i>	1891-3	Firth College and University College of Liverpool	Magnetism.—Permeability of various kinds of steel under different degrees of magnetisation	—	Married shortly after expiration of Scholarship. Since deceased.
12. Parker, Frank Herbert. <i>Nominated by University College of South Wales and Monmouthshire, Cardiff</i>	1891-3	University College, Cardiff, and Federal Polytechnic, Zürich	Physics.—Experiments on the heating of the dielectric of an electric condenser and on the propagation of an electric wave in an artificial submarine cable	B.Sc. London A.M.I.E.E. Fellow of Physical Society.	1898-1905, Lecturer in Mathematics and Physics, Battersea Polytechnic. Since 1905 Lecturer in Physics, Woolwich Polytechnic.
13. Moore, Benjamin, B.A. <i>Nominated by Queen's College, Belfast (now Queen's University of Belfast)</i>	1891-3	University of Leipzig	Physical Chemistry.—Speed of reaction in mixtures of isohydric and non-isohydric solutions of acids. Speed of crystallisation from over-cooled liquids	M.A. Royal University of Ireland (1892), D.Sc. Royal University of Ireland (1902)	1894-8, Assistant Professor of Physiology, University College, London. 1898-1900, Professor of Physiology, Yale University, U.S.A. 1900-2, Lecturer on Physiology, Charing Cross Medical School, London. Since 1902 Professor of Biochemistry, University of Liverpool.
14. Dunn, Frederick William, B.A. <i>Nominated by Royal College of Science for Ireland</i>	1891-2	University of Glasgow	Physics.—Behaviour of electrostatic instruments under different conditions. Production of heat in an electrolytic cell	—	1892, Assistant Examiner; 1904, Deputy Examiner, H.M. Patent Office. Also called to the Bar in 1908.

15. Evans, Percy Norton, B.Sc. . . <i>Nominated by McGill University, Montreal</i>	1891-3	University of Leipzig	Chemistry.—Condensations—produkte des β -Diketone mit Hamstoff, Guanidin und Thio-harnstoff	Ph.D. Leipzig	Professor of Chemistry and Director of the Chemical Laboratory, Purdue University, Lafayette, Indiana. 1910, President, Indiana Academy of Science.
16 Steele, William Huey, B.A. . . <i>Nominated by University of Mel- bourne</i>	1891-3	University of Melbourne	Electricity.—Conductivity of a solution of copper sulphate. The physical constants of thallium. A new thermo- electric phenomenon. Thermoelectric constants of some pure metals	M.A. Melbourne	No longer engaged in scientific work. Formerly Lecturer on Technical Electricity, Ballarat School of Mines, Victoria.
17. Herbertson, Andrew John . . <i>Nominated by University of Edin- burgh</i>	1892-4	Ben Nevis Observatory and University of Montpellier	Physics.—Hygrometry of the atmos- phere	Ph.D. Freiburg- im-Breisgau, M.A. Oxford	1894-6, Lecturer in Geography, Owens College, Manchester. 1896-9, Lec- turer in Commercial Geography, Heriot-Watt College, Edinburgh. 1899-1901, Assistant to the Reader in Geography, University of Ox- ford. 1901-5, Lecturer on Regional Geography, University of Oxford. Since 1905 Reader in, and since 1910 Professor of Geography in the University of Oxford. Member of Royal Commission on Canals and Inland Waterways. Assistant Honorary Secretary, Research De- partment of the Geographical Society, and Honorary Secretary, Geographi- cal Association. 1910, President, Section F, British Association.
18. Henderson, James Blacklock, B.Sc. <i>Nominated by University of Glas- gow</i>	1892-4	Universities of Glasgow and Ber- lin	Electricity and Magnetism.—The effects of mechanical stress on the electrical resistance of metals. Polarisation of platinum electrodes in sulphuric acid. On the effects of magnetic fields on the electric con- ductivity of bismuth	D.Sc. Glasgow (1897)	1894-8, Assistant Professor of Physics, Yorkshire College, Leeds. 1898- 1901, Head of Scientific Staff, Messrs. Barr & Strouds, Admiralty Con- tractors, Glasgow. 1901-5, Lecturer in Electrical Engineering, Univer- sity of Glasgow. Since 1905 Pro- fessor of Applied Mechanics, Royal Naval College, Greenwich.
19. Macdonald, John, M.A., B.Sc. . . <i>Nominated by University of Aber- deen</i>	1892-4	University of Jena	Chemistry.—The preparation and the study of certain derivatives of py- razole with a view to deciding the question of the constitution of py- razole	Ph.D. Jena (1894)	1894-9, Science Master at George Watson's College, Edinburgh. Since 1899 Rector of the High School, Dunfermline, and Director of Studies at the Lauder Technical School. Also since 1907 an Examiner for degrees in Arts, Science, and Medi- cine at St. Andrews University.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
20. Marks, Lionel Simeon <i>Nominated by</i> Mason Science College, Birmingham (now University of Birmingham)	1892-4	Cornell University	Mechanical Engineering.—Investigations in mechanical engineering, and on strength of magnesium and its alloys	M.M.E. Cornell (1894)	Professor of Mechanical Engineering at Harvard University since 1908; formerly Assistant Professor.
21. Thomas, George Lester <i>Nominated by</i> University College, Bristol (now University of Bristol)	1892-4	University College, Bristol; University of Leipzig	Physical Chemistry.—Researches on vapour pressures and specific volumes	—	1896-1902, Physics Master, St. Olave's School, Southwark. 1902, Assistant Master, Pretoria College, Transvaal. During 1908 Acting Lecturer in Mathematics, Transvaal University College. April 1909-April 1910, Acting Head Master, Pretoria College.
22. Mann, Harold Hart, B.Sc. <i>Nominated by</i> Yorkshire College, Leeds (now University of Leeds)	1892-4	Yorkshire College and Laboratory of Biological Chemistry of the Sorbonne, Paris	Chemistry.—Chemistry of flames. Action of certain antiseptic substances on yeast	—	After a successful career as Chemist to the Indian Tea Association he was appointed head of the Poona Agricultural College, and Agricultural Chemist to the Government of Bombay.
23. Conroy, James Terence, B.Sc. <i>Nominated by</i> University College, Liverpool (now University of Liverpool)	1892-4	University College, Liverpool, and University of Göttingen	Chemistry.—Research on the constitution of Liebermann's colour and other researches in organic chemistry	Ph.D. Göttingen (1894)	Since December 1894 Research Chemist, United Alkali Co., Ltd., Widnes.
24. Lamb, Thornton Charles <i>Nominated by</i> Owens College, Manchester (now Victoria University of Manchester)	1892-4	Owens College and University of Heidelberg	Chemistry.—Researches on atomic weights of palladium and platinum metals and on volatilisation of various substances at ordinary temperatures. Determination of the melting points of inorganic salts	Ph.D. Heidelberg (1895)	1895, entered Messrs. Brunner, Mond & Co.'s employ and since 1896 Manager of their Works, Silvertown, London.
25. Medley, Edward Arnold <i>Nominated by</i> University College, Nottingham	1892-4	Central Technical College, South Kensington	Electricity.—Investigations in the economics of electric incandescent lighting and photometry	—	1894-5, Assistant to the late Professor W. E. Ayrton, F.R.S., in investigations on improvements in the manufacture of electric lamps. 1895-7, carried out a series of investigations in London and Berlin on improvements in electric and gas incandescent lamps for the Langhans

26. Oates, William Henry <i>Nominated by Firth College, Sheffield (now University of Sheffield)</i>	1892-4	Firth College	Chemistry.—Determination of amount of sulphur-dioxide in fogs. Research on the dibromonaphthalenes	—	Engaged in research in Chemistry at University College, Sheffield, from 1894 to 1903, when he discontinued scientific work.	Patent Syndicate, Ltd. 1897-1902, employed by the Premier Electric Lamp Co., Ltd., as an expert in the manufacture of incandescent electric lamp filaments and as works manager. Since 1902, partner in the firm of Fowler & Medley, Electrical and Mechanical Engineers, Great Crosby, Liverpool. Manufacturer of the Fowler-Medley Patent Suction Gas Plants and of the Fowler-Medley Patent Tar Extractors and Gas Scrubbers, and of apparatus for treating gases and vapours with liquids.
27. Jones, Edward Taylor, B.Sc. <i>Nominated by University College of North Wales, Bangor</i>	1892-5	University College of North Wales, Bangor (½ year); University of Berlin (2½ years)	Electricity and Magnetism.—Experiments to determine the true relation between electro-magnetic stress or tractive force per unit area of magnets and magnetisation	D.Sc. London (1905)	1896, Assistant Lecturer in Physics and Electrical Engineering; and since 1900, Professor of Physics, University College of North Wales, Bangor.	
28. Ryce, George <i>Nominated by Queen's College, Cork (now University College, Cork)</i>	1892-3	Royal College of Science, London	Chemistry	B.A. Royal University of Ireland, F.C.S. (Chemistry and Agriculture), First Class Diploma of the Royal Agricultural Society of England.	Formerly held teaching posts at Royal College of Science, London, and Agricultural College, West Lavington; also acted as Agricultural Instructor and Analyst under Devon County Council; and later as Organising Secretary for County Kildare under the Department of Agriculture for Ireland. Now agent in Dublin for the Potash Syndicate, Stassfurt, Germany.	
29. Gannon, William, M.A. <i>Nominated by Queen's College, Galway (now University College, Galway)</i>	1892-4	Owens College, Manchester	Electricity.—Copper electrolysis in vacuo. Specific heat of water in terms of the international electric units	—	1894-6, Assistant Lecturer and Demonstrator in Physics, Owens College, Manchester. 1896-9, Science Lecturer and Inspector under the Stafford County Council. 1899-1903, Principal of Norwich Technical Institute. Since 1903 Principal of Woolwich Polytechnic.	

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Sciences and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
30. Smale, Frederick J., B.Sc. Nominated by University of Toronto	1892-5	Universities of Leipzig and Göttingen	Chemistry.—Theory of gas batteries from the standpoint of the dissociation theory. Measurements of dielectric constants. Conditions of the solution of uric acid in urine	Ph.D. Leipzig	Until his death in 1908, occupied an important position in a large industrial business as technical expert.
31. Allen, James Bernard, B.Sc. Nominated by University of Adelaide	1892-4	University of Sydney	Physics.—A series of experiments on sulphur	—	Lecturer on Mathematics and Physics in the Technical School, Perth, Western Australia. Formerly Assistant Lecturer and Demonstrator in Mathematics and Physics, University of Adelaide.
32. Jackson, David H., M.A., B.Sc. Nominated by University of New Zealand	1892-5	University of Melbourne; Royal College of Science, London; University of Heidelberg	Chemistry.—Hyponitrites. The properties of canarin. Hydrobenzene derivatives	Ph.D. Heidelberg	1895-6, Research Assistant, Pharmaceutical Society's Laboratories (London). 1896-7, Assistant in Scientific Department, Imperial Institute. 1897-1900, Lecturer at University College, Bristol. 1900-2, Lecturer at Birkbeck College (London). Since 1902 Head of a Consulting Practice, London.
33. Barracough, Samuel Henry, B.Eng. Nominated by University of Sydney	1892-5	Cornell University and University of Sydney	Mechanical Engineering.—Effect of temperature on readings of steam-engine indicators. Heat losses to cylinder walls of engines. Investigations in hydraulics	M.M.E. Cornell, A.M.I.C.E. M.I.M.E.	Assistant-Professor in the Faculty of Science and Lecturer in Mechanical Engineering, University of Sydney.
34. Bolam, Herbert William, B.Sc. Nominated by University of Edinburgh	1893-6	Universities of Leipzig (2½ years) and Edinburgh (¾ year)	Chemistry.—Optically active methoxy- and propoxy-succinic acids. Saponification products of dicarboxylic glutaconic ether. Reduction of imido ethers	Ph.D. Leipzig	1898-1900, Assistant Lecturer, and 1900-4, Principal Lecturer in Chemistry, Leith Technical College. Since 1903 Lecturer in Chemistry, Queen Margaret College, University of Glasgow.

35. Allan, George Edwin, B.Sc. Nominated by University of Glasgow	1893-5	Universities of Glasgow and Heidelberg	Electricity and Magnetism.—Contact differences of potential between metals. Measurement of the attraction of thin magnetic filaments	D.Sc. Birmingham (1903)	1895-1903, Assistant to Professor of Physics, University of Birmingham. Since 1905 Lecturer on Optics, Technical College, Glasgow. Also, 1906-8, University Assistant in Natural Philosophy, and since 1908 Lecturer in Electricity, University of Glasgow.
36. Walker, James Wallace, M.A. Nominated by University of St. Andrews	1893-6	Universities of St. Andrews and Leipzig, and Central Technical College, South Kensington	Chemistry.—Active lactic acids and the rotation of their metallic salts in solution. Etheral salts of optically active lactic, chloropropionic, and bromopropionic acids. Optical activity of mandelic acid and its salts in solution	Ph.D. Leipzig	Professor of Chemistry, McGill University, Montreal.
37. Lapworth, Arthur, B.Sc. Nominated by Mason College, Birmingham (now University of Birmingham)	1893-5	Central Technical College, South Kensington	Chemistry.—Action of acid chlorides on nitrates. Sulphonic acids of betamathoxy- and betaethoxy-naphthalene, &c.	D.Sc. London (1896), F.I.C. F.R.S. (1910)	1895, Lecturer in Chemistry, School of Pharmacy, Bloomsbury Square. 1900, Head of Chemistry Department, Goldsmiths' Institute, New Cross. 1906-1909 Lecturer in Chemistry and Secretary of Science Department at the Goldsmiths' College, University of London. 1909, Union Lecturer and Demonstrator and Assistant Director of the Inorganic Laboratories, University of Manchester. Schunck Fellow, University of Manchester. 1910, Fellow of the Royal Society.
38. Myers, John Ellis, B.Sc. Nominated by Yorkshire College, Leeds (now University of Leeds)	1893-6	University of Strassburg	Physics.—Investigations of the silver voltmeter and of Faraday's law of electro-chemical equivalents. Decomposition of silver salts when exposed to hydrostatic pressure	M.Sc. Victoria, Ph.D. Strassburg	Deceased.]
39. Titherley, Arthur Walsh, B.Sc. Nominated by University College, Liverpool (now University of Liverpool)	1893-5	University College, Liverpool, and University of Heidelberg	Chemistry.—Amides of sodium, potassium, and lithium. Glutaric derivatives	Ph.D. Heidelberg (1895), M.Sc. Victoria (1896), D.Sc. Victoria (1901), D.Sc. Liverpool (1904)	1897-1905, Assistant Lecturer in Chemistry, University College, Liverpool. Since 1905 Lecturer in charge of Department of Organic Chemistry, University of Liverpool. Examiner in Chemistry for Liverpool University and Joint Matriculation Board. Has served on education committees, governing bodies of schools, &c. Author of "A Laboratory Course of Organic Chemistry."

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar as far as ascertained	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
40. Baly, Edward Charles Cyril Nominated by University College, London	1893-6	University College, London	Physical Chemistry. — Relations of pressure, volume, and temperature in rarefied gases. Action of nitric acid on the lignocelluloses. Investigation of two-fold spectra of rarefied oxygen and nitrogen. Attempt to decompose these gases	Fellow of Univ. Coll. London (1907). F.R.S. (1909)	Formerly Assistant Professor of Chemistry and Lecturer in Spectroscopy, University of London, University College. Now Grant Professor of Inorganic Chemistry in Liverpool University. Author of "Spectroscopy," in Messrs. Longmans' series of text-books on Physical Chemistry. Fellow of Royal Society, 1909.
41. Cain, John Cannell, B.Sc. Nominated by Owens College, Manchester (now Victoria University of Manchester)	1893-5	University of Tübingen; Owens College, Manchester; University of Heidelberg	Chemistry. — Instantaneous pressures produced in the explosion of gases. Incomplete combustion of gases. Research on dural derivatives	D.Sc. Tübingen (1893). M.Sc. Victoria (1902). D.Sc. Victoria (1904)	1895, Technical Chemist at Levinstein's Chemical Works, Manchester. 1901, Head of Chemistry and Physics Department, Municipal Technical School, Bury, Lancs. 1904, Manager and Head Chemist Messrs. Brooke, Simpson & Spiller, Ltd., London. 1906, Editor of Chemical Society's Publications. 1908, Examiner in Coal-tar Products to the City and Guilds of London Institute. 1910, Examiner in Pure and Applied Chemistry to the University of Manchester. Author of "Chemistry of Diazo-Compounds."
42. Bryant, Ella Mary, B.Sc. (London) Nominated by Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)	1893-5	Durham College of Science and Royal College of Science, London	Physics. — Investigation of temperature of boiler plates by electrical methods	B.Sc. Durham (1896). M.Sc. Durham (1899)	1898, Senior Mistress, County School, Blaenau Ffestiniog, North Wales. 1901, Senior Science Mistress, Dulwich High School. 1902, Senior Science Mistress, Sheffield High School. 1905, Senior Science Mistress, King'sland L.C.C. Secondary School.
43. Granger, James Darnell, A.I.C. Nominated by University College, Nottingham	1893-5	University of Berlin	Chemistry. — Preparation of β -propylpiperidine	Ph.D. Berlin (1896). F.I.C. London	Analytical Chemist in large soap works, Germany.
44. O'Brien, Mary, B.Sc. (Mrs. O'Brien Harris) Nominated by University College of Wales, Aberystwyth	1893-5	Botany School, University of Oxford	Botany. — The proteids of wheat	D.Sc. London	1895-1906, Assistant Mistress under the late School Board for London, and under the L.C.C. in Fetter Lane and Finsbury. 1906, Head Mistress of L.C.C. Secondary School.

45. Donnan, Frederick George <i>Nominated by Queen's College, Belfast (now Queen's University of Belfast)</i>	1893-5	University of Leipzig	Physical Chemistry.—Photometric investigation of the electrolytic dissociation of violuric acid in aqueous solution, and of the effects produced thereon by other organic acids	M.A. Royal University of Ireland (1894). Ph.D. Leipzig (1896)	1897. Junior Fellow, Royal University of Ireland. 1900, Assistant Professor of Chemistry, University College, London. 1903, Lecturer in Organic Chemistry, Royal College of Science, Dublin. Since 1904 Professor of Physical Chemistry, University of Liverpool, and Director of the Muspratt Laboratory of Physical and Electro-Chemistry.
46. MacPhail, James Alexander, B.Sc. <i>Nominated by McGill University, Montreal</i>	1893-5	Versuchs-Anstalt, Charlottenburg, and University of Heidelberg	Civil Engineering.—Influence of temperature on strength of materials, &c.	—	Professor of General Engineering, Queen's University, Kingston, Ontario.
47. Carmichael, Norman Ross, M.A. <i>Nominated by Queen's University, Kingston, Ontario</i>	1893-5	Johns Hopkins University, Baltimore	Electricity. — Various researches in electricity	—	Until his death, in 1908, Assistant Professor of Physics, School of Mining, Kingston, Ontario.
48. Ledger, William Henry, B.Eng. <i>Nominated by University of Sydney</i>	1893-5	Cornell University	Civil Engineering.—Bridge engineering	M.C.E. Cornell B.Sc. Adelaide	Lecturer in charge of Engineering and Surveying Departments at South Australian School of Mines.
49. MacDonald, George William, B.Sc. <i>Nominated by University of Melbourne</i>	1893-6 (2 years)	University of Melbourne and University College, London	Chemistry.—Interaction of nitric oxide and sodium ethylate. Whether argon is contained in animal or vegetable substances. Production of cyanides at the temperature of the electric arc	M.Sc. Melbourne	1896, Chemist to Messrs. Pigou, Wilks & Laurence, Explosive Works, Dartford, Kent. 1898, Manager of same on incorporation with Messrs. Curtis & Harvey, Ltd. 1908, appointed by Messrs. Curtis & Harvey, Ltd., Head of their Research Department.
50. Beattie, John Carruthers, B.Sc. <i>Nominated by University of Edinburgh</i>	1894-7	Universities of Vienna, Berlin, and Glasgow	Electricity and Magnetism.—Electrical research, and particularly the behaviour of conductors in a steady magnetic field when traversed at different temperatures by a continuous electric current	D.Sc. Edinburgh, F.R.S.E.	Since 1897 Professor of Physics, South African College, Cape Town. Past President South African Philosophical Society. Member of Council of University of Cape of Good Hope. Member of Council of South African Association for the Advancement of Science. Member of Meteorological Commission of Cape Colony. Member of Council of Royal Society, South Africa.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
51. Erskine-Murray, James Robert, B.Sc. <i>Nominated by University of Glasgow</i>	1894-6	Universities of Glasgow and Cambridge	Physics. — Temperature variation of the thermal conductivity of rocks. Effect of Röntgen rays on the contact electricity of metals and other researches on contact electricity	D.Sc. Glasgow, F.R.S.E. M.I.E.E. Fellow of Phys Soc.	1896-8, Assistant Professor of Applied Physics and Electrical Engineering, Heriot-Watt College, Edinburgh. 1898-1900, chief Experimental Assistant to Mr. Marconi. 1900-4, Lecturer on Physics and Electricity, University College, Nottingham. 1904-6, Science and Mathematics Master, Kelvin's Academy, Glasgow. 1906-7, Consulting Engineer, Glasgow, and Lecturer on Electrical Engineering in Paisley Technical College. Since 1907, Consulting Electrical Engineer and Radiotelegraphist (London), and Lecturer on Wireless Telegraphy and Telephony at the Northampton Polytechnic Institute, London.
52. Davidson, William Brown, M.A., B.Sc. <i>Nominated by University of Aberdeen</i>	1894-7	Universities of Würzburg and Leipzig	Chemistry. — Diazophenols, catalytic actions, &c. Diazonium hydrate, diazotates, isonitro compounds	Ph.D. Würzburg (1898), D.Sc. Aberdeen (1899), F.I.C. (1900)	1898-1900, Assistant Lecturer and Demonstrator, Chemical Department, University College, Liverpool. 1900-2, Senior Demonstrator and Lecturer on Physical Chemistry, University of Aberdeen. 1903-5, First Class Research Chemist, Experimental Establishment, Woolwich Arsenal. Since 1905 Chemist to the Gas Committee, Birmingham.
53. Clinker, Reginald Charles <i>Nominated by University College, Bristol (now University of Bristol)</i>	1894-6	University College, Bristol, and University College, London	Electricity. — Determination of the specific inductive capacity and the hysteresis of dielectrics. Design of, and experiments with, an apparatus for measuring magnetic hysteresis	—	Since 1896 Designing Engineer with the British Thomson-Houston Co., Rugby.
54. Dent, Frankland, B.Sc., A.I.C. <i>Nominated by Yorkshire College, Leeds (now University of Leeds)</i>	1894-6	University of Munich	Chemistry. — Nitro- and nitroso-urethanes	F.I.C. (1895), M.Sc. Victoria (1897), Ph.D. Munich (1898), M.Sc. Leeds (1906)	1900-5, Chemist to Siena Company, Limited, Burgos, Spain. 1905, Assistant Government Analyst, Singapore. 1906, Government Analyst, Straits Settlements.

55. Ewart, Alfred James, B.Sc. <i>Nominated by</i> University College, Liverpool (now University of Liverpool)	1894-7	University of Leipzig and Botanical Institute, Java	Botany.— <i>Assimilatory inhibition</i> in chlorophyllous plants. Acclimatisation and allied problems of economic botany. Contact irritability. Evolution of oxygen from coloured bacteria	Ph.D. Leipzig (1896), D.Sc. London (1897), D.Sc. Melbourne (1907), D.Sc. Oxford (1910)	1905. Professor of Botany, University of Melbourne, and Government Botanist. 1908, Chairman of the Forest Examination Board.
56. Morris, David King <i>Nominated by</i> University College, London	1894-6	University College, London; Federal Polytechnic, Zürich	Physics and Electrical Engineering.— Dielectric hysteresis. Measurement of varying currents in inductive circuits. Effect of annealing on physical properties of manganese steel. Magnetic properties of electrical resistance of iron as dependent upon temperature	Ph.D. Zürich (1897), Fellow of University College, London (1897), M.I.E.E., Member of Phys. Soc. Associate of American Institute of Electrical Engineers (1904)	1897-8, Senior Demonstrator in Electrical Engineering, South-Western Polytechnic, Chelsea. 1898-1906, Lecturer in Electrical Engineering, Mason University College, Birmingham (now University of Birmingham), 1902-6, Conducted entire work of department, and designed new laboratories of University Buildings at Bournbrook. Since 1906 Joint Proprietor and Manager of Morris & Lister, now Morris & Lister, Ltd., Coventry, makers of well-known electrical engineering appliances and inventions.
57. Frith, Julius <i>Nominated by</i> Owens College, Manchester (now Victoria University of Manchester)	1894-6	Owens College and Central Technical College, South Kensington	Electricity.—Devising a recording thermometer. Researches on the resistance of the electric arc; the effect of wave forms on the alternate current arc, &c.	M.Sc. (Hon.) Victoria (1906) M.I.E.E.	1896-1910, With Mather & Platt, Engineers, Manchester, and, 1903-10, Head of their Electrical Designing and Testing Departments. Since 1907 has given at the Manchester Municipal School of Technology the fourth-year lectures on the design of direct-current machinery. Now giving the fifth-year course on the design of alternating-current machinery, on which subject he is writing a book. Has recently started work as an independent consulting engineer.
58. Beattie, Robert, B.Sc. <i>Nominated by</i> Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)	1894-6	Durham College of Science and University College, London	Electricity and Magnetism.—Incandescent lamp tests. Design of, and experiments with, an apparatus for measuring magnetic hysteresis	D.Sc. Durham, M.I.E.E.	Since 1900 Demonstrator and Lecturer in Electrotechnics, Victoria University of Manchester.

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Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
59. Burnie, William Beckett. <i>Nominated by University College, Nottingham</i>	1894-6	Central Technical College, South Kensington, and Federal Polytechnic, Zürich	Electricity and Magnetism.—Construction of apparatus for measuring small magnetic permeabilities and for determination of A.C. wave forms. Experiments on the efficiency of A.C. arc and causes of variation with wave form. Experiments on thermo-electric properties of liquid metals	B.Sc. London (1905), D.Sc. London (1907)	1897-8, Technical Assistant with Messrs. Siemens Bros. 1898-1900, Demonstrator in Electrical Engineering, Chelsea Polytechnic. 1900-5, Chief Lecturer in Electrical Engineering. Royal Technological Institute, Salford. 1905-9, Principal of the Croydon Technical Institute. 1909, Principal of the Brighton Municipal Technical College.
60. Rodgers, Charles, B.Sc. Lond. <i>Nominated by Firth College, Sheffield (now University of Sheffield)</i>	1894-6	Central Technical College and Federal Polytechnic, Zürich	Physics.—Construction of apparatus for tracing wave forms of alternating currents, and various other experiments in electricity and magnetism. Work on the resistance of the electric arc.	B.Eng. Sheffield (1908)	Since January 1901 with Siemens Bros. & Co., Ltd., and Siemens Bros. Dynamo Works, Ltd., commencing in designing and experimental departments. In 1904 appointed chief of alternating-current designing department at the Stafford Works of the latter Company. Since the autumn of 1905 in advising position on Management Staff in London.
61. McClelland, John Alexander, M.A. <i>Nominated by Queen's College, Galway (now University College, Galway)</i>	1894-5	Owens College, Manchester, and University of Cambridge	Physics.—Specific inductive capacity of air. The leakage of dielectrics traversed by Röntgen rays. The selective absorption of Röntgen rays	M.A. Cambridge (1898), Fellow Royal University of Ireland (1901), D.Sc. (Hon.) R.U.I. (1906), F.R.S. (1909)	Resigned Scholarship in 1895 on obtaining Junior Fellowship in Royal University of Ireland. Worked in Cavendish Laboratory until 1900. Appointed, 1900, Professor of Physics, University College, Dublin. 1905, Secretary Royal Irish Academy. 1908, Senator of National University. 1910, Commissioner of National Education, Ireland. 1909, Fellow of Royal Society.
62. Kenrick, Frank Boteler, B.A. <i>Nominated by University of Toronto</i>	1894-7	University of Leipzig and Private Laboratory of Professor van't Hoff, Berlin	Physical Chemistry.—Potential differences between gases and liquids. The solubility and conditions of existence of tachydrate. The osmotic transformation of ammonium bimalate	Ph.D. Leipzig (1896), M.A. Toronto (1901)	1897, Assistant; 1900, Lecturer; 1907, Associate Professor of Chemistry, University of Toronto.

63. McKittick, Frederick Alexander, B.Sc. <i>Nominated by Dalhousie University, Halifax, Nova Scotia</i>	1894-6	Cornell University	Electricity.—Losses of energy in an iron ring subjected to alternating magnetic forces. Construction of Hotchkiss's galvanometer, and investigations therewith, &c.	—	Since 1905 Managing Director of the General Electric Company for Australasia.
64. Gilchrist, John D. F., M.A., B.Sc. <i>Nominated by University of Edinburgh</i>	1895-6	University of Edinburgh and various Fishery Stations	Food Fisheries.—Study of the nervous system of the mollusca, &c.	D.Sc. Edinburgh, Ph.D. Zürich	Appointed in 1906 Marine Biologist to the Government of the Cape of Good Hope; subsequently Government Biologist. Now Professor of Zoology at the South African College, Cape-town, and Chairman of the Fishery Board, Cape of Good Hope.
65. Stewart, Walter, M.A., B.Sc. <i>Nominated by University of Glasgow</i>	1895-8	Universities of Glasgow and Berlin	Electricity and Magnetism.—Electrification of air: Damping effect of the magnetic field on rotating insulators. Loss of weight of platinum and palladium wires in different gases when raised to a high temperature. Contact electricity	D.Sc. Glasgow (1898)	1899-1903, Chief Assistant to Professor of Natural Philosophy and Lecturer in Electricity (Pure and Applied), University of Glasgow. 1903-6, Junior Inspector of Schools, and since 1906 H.M. Inspector of Schools (Scotland).
66. Williamson, Henry Charles, M.A., B.Sc. <i>Nominated by University of St. Andrews</i>	1895-7	Marine Laboratories, Naples and Kiel	Food Fisheries.—Reproduction and development of the eel. Absorption of the yolk in teleostean ova	D.Sc. St. Andrews (1902), F.R.S.E.	Appointed, 1897, one of the Naturalists to the Fishery Board for Scotland.
67. Henderson, James, B.Sc. <i>Nominated by University College, Dundee</i>	1895-7	Polytechnic Institute, Munich	Chemistry.—Action of diastase enzyme and dilute acids on various dextrans and sugars	Ph.D. Munich	For three years Lecturer in Organic Chemistry, McGill University, Montreal, and during the past seven years Chief Chemist to Horlick's Malted Milk Co., Racine, Wis., U.S.A.
68. Pickard, Robert Howson, B.Sc. <i>Nominated by Mason College, Birmingham (now University of Birmingham)</i>	January 1896 to December 1897	University of Munich	Chemistry.—Researches on indigo derivatives and hydroxamic acids	Ph.D. Munich (1898), A.I.C. (1898), D.Sc. London (1899), F.I.C. (1903)	Lecturer on Chemistry (since 1899) and Principal (since 1908) of Municipal Technical School, Blackburn. Also Consulting Chemist and Gas Examiner to Corporation of Blackburn since 1900.
69. Milner, Samuel Roslington, B.Sc. <i>Nominated by University College, Bristol (now University of Bristol)</i>	1895-8 (2 years)	University College, Bristol, and University of Göttingen	Physics.—Thermal conductivity of water. Surface tension of mercury under electrolytes	D.Sc. London (1899)	1898-1900, Junior Demonstrator, in Physics, Owens College, Manchester. Since 1900 Lecturer in Physics, University of Sheffield.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
70. Farmer, John Taylor, B.Sc. <i>Nominated by University College, Liverpool (now University of Liverpool)</i>	1895-7	MacDonald Engineering Laboratory, Montreal	Engineering.—Phenomena of impact and their application to water motors	Ma. E. McGill (1897), M.Sc. Liverpool (1901)	1897, Entered service of Canadian Government as Assistant Examiner in Patent Office. 1899, in the employ of Crosby Steam Gauge & Valve Co., Boston; Ball & Wood Co., Elizabeth, N.Y.; Watts-Campbell Co., Newark, N.Y.; N.Y. 1901, Assistant Engineer to the Green Fuel Economizer Co., N.Y. 1905, opened office in Montreal as Canadian representative of Green Fuel Economizer Co., and various British firms.
71. Aston, Emily, B.Sc. <i>Nominated by University College, London</i>	1895-7	University College, London, and University of Geneva	Chemistry.—Pyridine compounds. Influence of temperature on the rotatory power of liquids, &c.	M.Sc. Victoria (1897), A.M.Inst.C.E. (1897)	Discontinued research a few years after expiration of scholarship.
72. Moorby, William Henry, B.Sc. <i>Nominated by Owens College, Manchester (now Victoria University of Manchester)</i>	1895-6	Owens College, Manchester	Engineering.—The mechanical equivalent of heat	B.Sc. Durham (1896), M.Sc. Durham (1899), M.Sc. McGill (1899), D.Sc. Durham (1905)	1896-7, Demonstrator in Engineering, Owens College, Manchester. Assistant Civil Engineer in H.M. Naval Establishments: at Devonport Dockyard, 1897-1900; at Jamaica Yard, 1900. Civil Engineer at Devonport Dockyard, 1903; at Gibraltar Dockyard, 1905; at Admiralty, 1910.
73. Mellanby, Alexander Lawson, A.Sc. <i>Nominated by Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)</i>	1895-7	MacDonald Engineering Laboratories, Montreal, and Durham College of Science	Mechanical Engineering.—Relative efficiencies of multiple expansion engines	B.Sc. Durham (1896), M.Sc. Durham (1899), M.Sc. McGill (1899), D.Sc. Durham (1905)	1897-8, Chief Technical Assistant, Messrs. Richardson, Westgarth, Hartlepool. 1898-9, Chief Lecturer in Engineering, Battersen Polytechnic. 1899-1905, Lecturer of Engineering, Manchester School of Technology. Since September 1905 Professor of Engineering, Glasgow and West of Scotland Technical College.

74. Fellmann, Martin Ernest, B.Sc. <i>Nominated by University College, Nottingham</i>	1895-7	Federal Polytechnic, Zürich	Chemistry.—Investigation of properties and reactions of metabrom- β - phenyl-hydroxylamine	Ph.D. Bæle	Has been engaged in the research laboratories and works of various coal tar colour manufacturers, and is now Consulting Chemist to the Steam Electric Lamp Co., Ltd., con- tinuing his research work, and carry- ing on a general consulting and analytical practice.
75. Hanna, William, M.A. <i>Nominated by Queen's College, Belfast (now Queen's University of Belfast)</i>	1895-7	Laboratories of Royal Colleges of Physicians and Surgeons, London, and Laboratory of Hygiene and Bacteriology, Berlin	Biology.—Researches in pathology and bacteriology as connected with diseases of cattle	M.B., B.Ch. (1895). Diploma in Public Health, University of Cambridge (1898).	1898-1901, in India as Medical Officer for Plague Duty in Madras, and as Bacteriologist in the Govern- ment Plague Laboratory in Bombay. Since 1901 Assistant Medical Officer of Health for the City and Port of Liverpool, and Lecturer on Bacterio- logy and Meat and Food Inspection at School of Hygiene, University of Liverpool. Also appointed, 1905, Medical Inspector of Aliens at Liverpool, and, 1909, Local In- specter, Board of Agriculture, under Diseases of Animals Act.
76. King, Robert Owen, B.Sc. <i>Nominated by McGill University, Montreal</i>	1895-8	McGill College and Harvard Col- lege	Electricity and Magnetism.—Thermal conductivity of metals. Experiments on the absolute measurement of the Thomson effect in copper. Absolute measurement of the E.M.F. of the Clark cell, using a Weber dynamo- meter and Callendar methods	M.Sc. McGill (1898)	Manager, King Construction Company, North Tonawanda, New York. De- signed improvements in salvage methods and acted as consulting engineer for various salvage opera- tions. Specialising in design of horticultural buildings which are now in use in England, France and America.
77. Walker, Thomas Leonard, M.A. <i>Nominated by Queen's University, Kingston, Ontario</i>	1895-7	University of Leipzig	Mineralogy.—Studies of the Sudbury (Ontario) ore deposits	Ph.D. Leipzig	1897-1901, Assistant Superintendent, Geological Survey of India, Cal- cutta. Since 1901 Professor of Mineralogy and Petrography, Uni- versity of Toronto.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
78. Rutherford, Ernest, M.A., B.Sc. <i>Nominated by University of New Zealand</i>	1895-8	Cavendish Laboratory	Electricity and Magnetism.—Magnetic viscosity. A magnetic detector of electrical waves and some of its applications. Passage of electricity through gases. Velocity and rate of recombination of ions and gases exposed to Röntgen rays. Electrification of gases exposed to Röntgen rays. Conduction in gases caused by uranium radiation. Discharge of electrification by ultra-violet light	B.A. Cambridge, Coutts-Trotter Studentship (1897) D.Sc. New Zealand (1899), F.R.S. (1903), Hon. LL.D. McGill, Wisconsin, Philadelphia, Hon. Ph.D. Gießen, Hon. D.Sc. Dublin	1898-1907, Macdonald Professor of Physics, McGill University. 1903, elected Fellow of Royal Society. Delivered, in 1904, Bakerian Lecture, Royal Society, and awarded the Rumford Medal. Since 1907 Langworthy Professor and Director of the Physical Laboratories, Victoria University of Manchester. Awarded Bressa Prize in 1907, Nobel Prize for Chemistry 1908, and Barnard Medal 1910. Author of "Radio-activity" (2 editions), and "Radio-active Transformations."
79. Watt, John Alexander, M.A., B.Sc. <i>Nominated by University of Sydney</i>	1895-6	Royal College of Science, London, and Mining Academy, Freiberg	Mineralogy.—Genesis of ore deposits.	—	Formerly engaged in the Geological Survey of New South Wales; now practising medicine in New South Wales.
80. Henderson, William Craig, M.A., B.Sc. <i>Nominated by University of Glasgow</i>	1896-8 (Eighteen months)	Cavendish Laboratory	Physics.—The motion of the æther in an electro-magnetic field. The mutual effect of evaporation and electrification of liquids	B.A. Cambridge (1900), D.Sc. Glasgow (1902)	1898-1900, Private Secretary and Assistant to Lord Kelvin. In 1900 called to the Bar.
81. Ogg, Alexander, M.A., B.Sc. <i>Nominated by University of Aberdeen</i>	1896-8	University of Göttingen	Physical Chemistry.—Chemical equilibrium and electromotive forces of amalgams	Ph.D. Göttingen (1898), Fellow of Royal Society of South Africa	1900-1, Assistant Professor of Physics, Aberdeen University. 1901-6, Assistant Master, Royal Naval Engineering College, Devonport. Since 1905 Professor of Physics and Applied Mathematics, Rhodes University College, Grahamstown, South Africa. Examiner in the University of the Cape of Good Hope.

82. Price, Thomas Slater, B.Sc. <i>Nominated by</i> Mason College, Birmingham (now University of Birmingham)	1896-9	Universities of Leipzig and Stockholm	Physical Chemistry.—Optically active amylic salts of glyceric, diacetyl- glyceric, and diacetyl-glyceric acids. Catalytic reactions. The temperature co-efficient of ester- saponification	Ph.D. Leipzig (1898), D.Sc. London (1900), F.C.S. (1901), D.Sc. Birmingham (1903), F.I.C. (1905)	1900-1, Assistant Lecturer and Demon- strator in Chemistry, University College, Sheffield. 1901-3, Senior Lecturer in Chemistry, University of Birmingham. Since 1903 Head of the Chemical Department at the Municipal Technical School, Bir- mingham. Also, since 1907, Exam- iner in Physical Chemistry for the Final Examination of the Institute of Chemistry, and since 1909 Assistant Examiner in Chemistry for London University Matriculation. 1909-1911 Chairman of the Birmingham Section of the Society of Chemical Industry. Edited Arrhenius' "Theories of Chemistry." Joint author of "A Course of Practical Organic Chemistry."
83. Fortey, Emily Comber, B.Sc. <i>Nominated by</i> University College, Bristol (now University of Bristol)	1896-8	University College, Bristol ($\frac{1}{2}$ year) and Owens College, Manchester ($1\frac{1}{2}$ years)	Chemistry.—The isolation of hexa- methylene by fractional distillation from American and Galician petro- leum, together with the preparation of some of its derivatives	—	1898-1902, published several papers in conjunction with Dr. Sydney Young, F.R.S., in the <i>Journal of the Chemical Society</i> . Since 1902 has done no re- search work.
84. Dawson, Harry Medforth, B.Sc. <i>Nominated by</i> Yorkshire College, Leeds (now University of Leeds)	1896-9	Universities of Berlin, Leipzig and Giessen	Physical Chemistry.—Lowering of the melting point of magnesium chloride by the addition of foreign sub- stances. Racemic transformation of ammonium bimalate. Influence of pressure on the formation of oceanic salt deposits. Electrical conduc- tivity and luminosity of flames containing vaporised salts	Ph.D. Giessen, D.Sc. Leeds	1899, Demonstrator, and 1900, As- sistant Lecturer and Demonstrator in Chemistry, Yorkshire College, Leeds. Since 1905 Lecturer on Physi- cal Chemistry, University of Leeds.
85. Annett, Henry Edward, M.B., D.P.H. <i>Nominated by</i> University College, Liverpool (now University of Liverpool)	1896-8	Royal Veterinary College, London, and Royal Institute for Infectious Diseases, Berlin	Comparative Pathology and Bacteri- ology. — Symptomatic malignant oedema; bradysot of sheep; braxy	M.D. Victoria (1899)	Since 1904 Superintendent of the Liverpool Institute of Comparative Pathology, and, since 1907, Professor of Comparative Pathology, Univer- sity of Liverpool.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
86. Petavel, Joseph Ernest . . . <i>Nominated by</i> University College, London	1896-9	Royal Institution Davy-Faraday Research Laboratory, London	Engineering and Electrical Physics.—The heat dissipated by a platinum surface at high temperatures. On some standards of light. Assisted Professors Dewar and Fleming in various researches on the properties of matter at low temperatures	M.Sc. Victoria, D.Sc. Victoria, A.M.Inst.C.E., A.M.Inst.E.E., F.R.S., F.R.Met.Soc.	1900-3, John Harling Fellow of Owens College, Manchester. 1904, Scientific Manager of the Low Temperature Exhibit of the British Royal Commission for the St. Louis Exhibition. 1907, Fellow of the Royal Society. 1908, Beyer Professor of Engineering and Director of the Whitworth Laboratory, Victoria University of Manchester. Member of the Advisory Committee for the Departmental Committee on Humidity and Ventilation in Cotton-weaving Sheds, the British Association Committee on Gas Explosions, and the British Association Committee on Investigation of the Upper Atmosphere.
87. Heinke, John Leithart, B.Sc. <i>Nominated by</i> Owens College, Manchester (now Victoria University of Manchester)	1896-8	Owens College, Manchester (½ year); University of Tübingen (1½ years)	Organic Chemistry.—Synthesis of isopropylglutaric acid. Action of diazomethan on various nitro bodies	D.Sc. Tübingen (1898) M.Sc. Victoria	1898-1903, Chemist, Badische Anilin und Soda Fabrik. Since 1903 Chemical Manager, Dyehouse Department, Burgess, Ledward & Co., Walkden, Manchester.
88. Smythe, John Armstrong, B.Sc. <i>Nominated by</i> Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)	1896-8	University of Göttingen	Organic Chemistry.—The proximate constituents of coal. Derivatives of turpentine	Ph.D. Göttingen (1898), M.Sc. Durham (1902), D.Sc. Durham (1908)	Since 1898 Lecturer in Chemistry, Armstrong College, Newcastle-upon-Tyne.
89. Bryan, George Blackford, B.Sc. <i>Nominated by</i> University College, Nottingham	1896-9	Cavendish Laboratory	Electricity.—Conductivity of liquids in thin layers. Influence of a metal on the nature of a surface of another metal placed close to it. Determination of the contact potential differences between different metals and solutions of salts of the same metal	B.A. Cambridge (1898), D.Sc. London (1899)	1899, Lecturer in Physics at the Royal Naval College, Devonport, and in 1910, 1908 Senior Assistant Master. Instructor in Physics at the Royal Naval College, Greenwich.

90. Richardson, Spencer William, B.Sc. <i>Nominated by University College of Wales, Aberystwyth</i>	1896-8	Cavendish Laboratory	Electricity and Magnetism.—The penetrative power of the radiation emitting from the glow of an electrodeless discharge. The magnetic properties of rings composed of alloys of iron and aluminium. Some changes in the magnetic condition of an alloy of nearly pure iron and aluminium	M.A. Cambridge, D.Sc. London	Principal of Hartley University College, Southampton.
91. Williams, David, B.Sc. <i>Nominated by University College of North Wales, Bangor</i>	1897-8	University of Berlin	Engineering.—Hysteresis in iron in slow and rapid cycles	—	1899, Acting Professor of Mathematics and Science, Gill College, Somerset East, Cape Colony. 1900, Master, Gill College High School. Acting Professor of Mathematics, Victoria College, Stellenbosch, Cape Colony. 1901-2, Science Master, Rondebosch High School. 1902-3, Assistant Surveyor, Forest Department, Cape Colony. 1904, appointed Cape Government Land Surveyor. Since 1904 Lecturer in Pure Mathematics at the Rhodes University College, Grahamstown.
92. Henry, John, M.A., B.Eng. <i>Nominated by Queen's College, Galway (now University College, Galway.)</i>	1896-8	Cavendish Laboratory	Electricity.—The motion of the æther in a magnetic field. The effect of ultra-violet light on the conductivity of iodine vapour. The deflection by magnetic forces of the electric discharge through gases	B.A. Cambridge (1899), Junior Fellowship in Physics in Royal University of Ireland (1899)	1898-1900, Lecturer in Physics, Queen's College, Galway. 1900-1, Studied electrical engineering, Central Technical College, London. 1901-2, Engaged in practical work at Central Station (Electric), Belfast. 1902-4, Assistant Lecturer in Physics and Electrical Engineering, Royal Technical Institute, Salford. 1904-7, Head of Electrical Engineering Department, Auckland Technical College, New Zealand. Since 1907 Science Teacher, High School, Dawson, Y.T., Canada.
93. Scott, Arthur Melville, B.A. <i>Nominated by University of Toronto</i>	1896-8	University of Göttingen	Physics.—The self-induction currents of the capillary electrometer. Polarisation capacity	Ph.D. Göttingen	1898, Instructor of Physics, University of Toronto. 1899, Professor of Physics and Electrical Engineering, University of New Brunswick. 1906, Superintendent of Schools under the Calgary Public School Board, Calgary, Alberta, Canada.

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94. McIntosh, Douglas, B.Sc. <i>Nominated by Dalhousie University, Halifax, Nova Scotia</i>	1896-9	Cornell University (2 years); University of Leipzig (1 year)	Physical Chemistry. — Relations between solubility and freezing point in mixtures containing three components. Electromotive force of gas cells	D.Sc.	Appointed Demonstrator in Chemistry, McGill University, Montreal, in 1901; Lecturer in 1904; Assistant Professor in 1907; and Associate Professor in 1908.
95. Erskine, John Angus, M.A. <i>Nominated by University of New Zealand</i>	1896-8	Universities of Berlin and Leipzig	Electricity.—The screening of magnetic and of electromotive force in the fields produced by Leyden jar discharges. Determinations of dielectric constants. The resistance of electrolytes for rapidly alternating currents	—	Electrical Engineer with the Sulphide Corporation, Broken Hill, New South Wales.
96. Smith, Longfield, B.Sc. <i>Nominated by University of Edinburgh</i>	1897-9	Universities of Leipzig, Paris, and Edinburgh	Organic Chemistry. — Unsaturated cycle-ketones. Compounds of hydrazine and semi-carbazone	Ph.D. Leipzig	1899, appointed Private Assistant to Professor D'Albuquerque, Island Professor of Chemistry and Agricultural Science, Barbados. 1901, appointed by Imperial Government Lecturer in Agricultural Science at Barbados. 1904, appointed Assistant Chemist for Sugar Cane Research Experiments. 1909, services transferred from Imperial Government to Local Government of Barbados as Lecturer in Natural and Agricultural Sciences.
97. Muir, James, B.Sc. <i>Nominated by University of Glasgow</i>	1897-1900	Engineering Laboratory, Cambridge	Engineering.—The recovery of iron from overstrain. The effect of tempering iron hardened by overstrain	B.A. Cambridge (1899), D.Sc. Glasgow (1902), M.A. Cambridge (1904)	1902-6, Lecturer and Assistant at the University of Glasgow. Since 1906 Professor of Natural Philosophy in Glasgow and West of Scotland Technical College.
98. Kyle, Harry McDonald, M.A., B.Sc. <i>Nominated by University of St. Andrews</i>	1897-1900	Gatty Marine Laboratory, St. Andrews; Laboratoire Arago, Banyuls-sur-Mer; Biolog. Anstalt, Heligoland; Zoological Station, Heller and Naples	Zoology.—Natural history of the herring and plaice. Classification of the flat fishes	D.Sc. St. Andrews (1901)	1901-3, Assistant Naturalist of the Marine Biological Association, Plymouth. Since 1903, Assistant Secretary Bureau du Conseil International pour l'Exploration de la Mer, Copenhagen.

90. Kay, Sydney A., B.Sc. <i>Nominated by University College, Dundee</i>	1897-9	Höögskola, Stockholm, and University of Leipzig	Physical Chemistry.—Equilibrium between sulphuric acid and sulphates in solution. Various allotropic modifications of metallic silver	D.Sc. St. Andrews (1902). F.C.S. (1905)	1900-1909, Assistant and Lecturer in Chemistry, United College, St. Andrews University. Now Assistant in Chemistry, Edinburgh University.
100. Shakespear, Gilbert Arden, B.A., B.Sc. Lond. <i>Nominated by Mason College, Birmingham (now University of Birmingham)</i>	1897-9	Cavendish Laboratory	Physics.—Application of an interference method to the investigation of Young's modulus for wires and its relation to changes of temperature and magnetisation	B.A. Cambridge	Lecturer in Physics and Special Lecturer on Experimental Physics, University of Birmingham.
101. Sprankling, Charles Henry Graham, B.Sc. Lond. <i>Nominated by University College, Bristol (now University of Bristol)</i>	1897-1900	Owens College, Manchester	Chemistry.— β aldehydo-propionic acid and β aldehydo-isobutyric acid; the alkyl-substituted succinic acids, &c.	B.Sc. Bristol	Since September 1908 Senior Science Master at the Bury Grammar School. Formerly held various teaching posts and spent eighteen months in Antigua as Assistant Government Analyst to the Leeward Islands.
102. Wilson, Harold Albert, B.Sc. <i>Nominated by Yorkshire College, Leeds (now University of Leeds)</i>	1897-1900	Cavendish Laboratory and University of Berlin	Electricity.—The influence of dissolved substances and of electrification on the reformation of clouds. The electric conductivity of salt vapours. The velocity of solidification and viscosity of supercooled liquids. The variation of the electric intensity and conductivity along the electric discharge in rarefied gases. The formation of syngenite	M.A. Cambridge, M.Sc. Victoria, D.Sc. London, F.R.S. (1906)	1901-7, Fellow of Trinity College, Cambridge. Elected in 1906 Fellow of the Royal Society. 1905-9, Professor of Physics, King's College, London, and External Examiner in Physics to the Universities of London, Birmingham and Leeds. Since 1909 Professor of Physics, McGill University, Montreal. Discovered electric effect of rotating dielectrics in a magnetic field.
103. Caspari, William Augustus, B.Sc. <i>Nominated by University College, Liverpool (now University of Liverpool)</i>	1897-9	Universities of Jena and Göttingen	Organic Chemistry.—The tautomerism in isocarbonylnitric ester and its derivatives. The reversibility of the oxyhydrogen electrolysis	Ph.D. Jena	Engaged in research work for Sir John Murray, Edinburgh; formerly Research Chemist to Rowntree & Co., Ltd., York.
104. Williams, Percy, B.Sc. <i>Nominated by University College, London</i>	1897-9	École de Pharmacie, Paris, and Laboratory of Professor van 't Hoff, Berlin	Chemistry.—Preparation and properties of borides of calcium, strontium, and barium, and other researches in connection with Moissan's electric furnace. Investigation of the Stassfurt minerals	—	Formerly Head Chemist to the British Uralite Co., Ltd. Now Manager of a tannin extract factory at Soekadana, West Borneo.

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105. Grindley, John Henry, B.Sc. <i>Nominated by Owens College, Manchester (now Victoria University of Manchester)</i>	1897-9	Owens College	Engineering.—Connection between the saturated and superheated conditions of steam	M.Sc. Victoria (1899), D.Sc. Victoria (1902), M.I.Mech.E. (1906)	1899, Demonstrator in Engineering, Owens College, Manchester. 1902, Head of Engineering Department, Huddersfield Technical College. 1904, Lecturer in Engineering, and, 1905, in Applied Mechanics, University of Liverpool. Since 1907 Principal of the School of Engineering, Gizeh, Egypt.
106. Hallaway, Robert Railton, B.Sc. <i>Nominated by Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)</i>	1897-9	Universities of Bonn and Heidelberg	Organic Chemistry.—Preparation of diiodoacetyl-hydrazide, metanitro-hippur-azide, and other derivatives.	Ph.D. Heidelberg (1901)	1901-1910, assisted his father as a Chemist at Carlisle. Now in business as a Pharmaceutical Chemist in Carlisle.
107. Willows, Richard Smith, B.Sc. <i>Nominated by University College, Nottingham</i>	1897-9	Cavendish Laboratory . . .	Experimental Physics.—The variation of resistance of certain amalgams with temperature. The distance between the striae in the positive column and other phenomena connected with the discharge. The cause of hardness in Röntgen ray bulbs	M.A. Cambridge, D.Sc. London	1900-1, Lecturer in Physics at Battersea Polytechnic. Since 1902 Head of Mathematics and Physics Department, Sir John Cass Technical Institute. Has acted as Examiner in Physics for the University of London.
108. Clark, Ernest <i>Nominated by Firth College, Sheffield (now University of Sheffield)</i>	1897-8 (Appointed for one year)	Owens College, Manchester (now Victoria University of Manchester)	Organic Chemistry.—Synthesis of compounds relating to the camphoric group	B.Sc. London, B.Sc. Sheffield	1898-9, Research Assistant, and since 1899 Assistant Lecturer in Chemistry, Royal Technical Institute, Salford.
109. Dawson, Maria, B.Sc. <i>Nominated by University College of South Wales and Monmouthshire, Cardiff</i>	1897-1900	Botanical Laboratory, Cambridge	Botany.—Nitragin. The organism of the nodules on the roots of leguminous plants	D.Sc. London (1900), D.Sc. Wales (1900)	1900-1, Lecturer in Botany. Woolwich Polytechnic Institute. 1901-2, Lecturer and Demonstrator in Botany, University College, Aberystwyth. Since 1902 Teacher of Biology and Horticulture in Cambridge and County Schools for Boys, and engaged in private research in Fruit Culture for Messrs. Chivers & Co., Histon, Leicestershire. Also during 1903-8, Lecturer in Natural History at Secondary Training College, Cambridge.

110. Osborne, William Alexander, M.B. <i>Nominated by Queen's College, Belfast (now Queen's University of Belfast)</i>	1897-9	University of Tübingen	Physiological Chemistry.—Preparation of invertine, its properties and chemical constitution	D.Sc. Tübingen (1899)	Since 1903 Professor of Physiology in the University of Melbourne. Former- ly Assistant Professor of Physiology, University College, London.
111. Gill, James Lester Willis, B.App.Sc. <i>Nominated by McGill University, Montreal</i>	1897-9	McGill University and Harvard University	Physics.—Measurement of magnetic hysteresis and permeability	M.Sc. McGill (1904)	Professor of Electrical Engineering, School of Mines, Kingston, On- tario.
112. Pope, Frederick John, M.A. <i>Nominated by Queen's University, Kingston, Ontario</i>	1897-9	Columbia University, New York	Analytical Chemistry.—Ontario mag- netites, with particular reference to those which are titaniferous	Ph.D. Columbia	1899-1905, Economic Geologist with Ricketts & Banks, New York; 1905-6, for Delamar Mines, New York. Since 1906 with J. H. Ham- mond, New York.
113. Strickland, Tom Percival <i>Nominated by University of Sydney</i>	1897-9	McGill University, Montreal	Hydraulics.—Various problems as to the flow of water in pipes; phe- nomena of jets, &c.	M.Sc. Sydney, A.A.I.E.E.	Chief Assistant Electrical Engineer, New South Wales Government Railways.
114. Rosenhain, Walter <i>Nominated by University of Mel- bourne</i>	1897-1900	Engineering Laboratory, Cam- bridge	Engineering.—Microscopic study of metals and their crystalline struc- ture. The effects of strain and varia- tion of temperature on such structure	B.A. Cambridge, B.C.E. Melbourne D.Sc. Melbourne	1900-6, Chief Chemist and Scientific Adviser to Chance Bros. & Co., Ltd., Glass and Lighthouse Works, Bir- mingham. Since 1906 Superinten- dent of the Department of Metal- lurgy and Metallurgical Chemistry in the National Physical Laboratory. Past President of the Optical Society of London. Awarded a Carnegie Research Medal and Silver Medal of Royal Society of Arts. Published a book on "Glass Manufacture."
115. Bottomley, James Frank, Ph.D. <i>Nominated by University of Glas- gow</i>	1898-1900	Owens College, Manchester, and University College, London	Organic Chemistry.—Condensation of ethylic malonate with formaldehyde. Molecular surface energy of mix- tures of associating and non-asso- ciating liquids	—	Appointed in 1901 on the staff of Merz and McLellan as Chemical Adviser, and has been engaged in working out an electric fur- nace process for the manufacture of fused silica on a large scale. This is now being worked commercially by the Thermal Syndicate, Ltd., of Wallsend-on-Tyne, and Mr. Bot- tomley holds the position of Manager of the Company.
116. Findlay, Alexander, M.A., B.Sc. <i>Nominated by University of Aber- deen</i>	1898-1900	University of Leipzig	Chemistry.—The theory of fractional precipitation	Ph.D. Leipzig (1900), D.Sc. Aberdeen (1902)	Since 1902 Lecturer on Chemistry and Special Lecturer on Physical Chemis- try, University of Birmingham.

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117. Buller, A. H. Reginald, B.Sc. <i>Nominated by</i> Mason University College, Birmingham (now University of Birmingham)	1898-1901	University of Leipzig; Zoological Station, Naples; University of Munich	Physiological Botany.—The process of decay in plants; the physiology of the spermatozoa of ferns; the destruction of the wood of Acer by fungi, &c.; chemotaxis and the fertilisation of the eggs of animals	Ph.D. Leipzig D.Sc. Birmingham F.R.S.C.	1901-4, Lecturer on Botany, University of Birmingham. 1904, Professor of Botany, University of Manitoba, Winnipeg. Author of "Researches on Fungi" (London, 1909.)
118. Calvert, Harry Thornton, B.Sc. <i>Nominated by</i> Yorkshire College, Leeds (now University of Leeds)	1898-1901	University of Leipzig	Physical Chemistry.—The electrolytic oxidation of sulphurous acid. The conversion of yellow into red phosphorus. The chemical dynamics of hydrogen peroxide	Ph.D. Leipzig, M.Sc. Leeds, F.I.C.	1901, Demonstrator in Chemistry, Yorkshire College, Leeds. 1902, Chemist to Reckitt & Sons, Ltd., Hull. Since January 1903, Chief Chemist to West Riding Rivers Board, Wakefield.
119. Brown, Ernest, B.Sc. <i>Nominated by</i> University College, Liverpool (now University of Liverpool)	1898-1900 (Eighteen months)	Central Technical College, South Kensington	Electrical Engineering.—The rise of temperature of the field coils of dynamos	M.Sc. Victoria (1900), M.Eng. Liverpool (1904)	Since 1908 Associate Professor in charge of Department of Applied Mechanics, McGill University, Montreal. Previously Assistant Professor of Applied Mechanics. Awarded in 1909 the Growski Medal of the Canadian Society of Civil Engineers for a paper on "Tests on reinforced-concrete beams."
120. Filon, Louis Napoleon George, M.A. <i>Nominated by</i> University College, London	1898-9 and 1900-2	King's College, Cambridge, and Cavendish and Engineering Laboratories, Cambridge	Applied Mathematics.—Experimental and mathematical investigation of problems connected with flexure, torsion, and elasticity	Fellow of University College, London (1898), B.A. Cambridge, (1901), D.Sc. London (1902), F.R.S. (1910)	1902, Granville Scholar of the University of London and Lecturer in Pure and Applied Mathematics, University College, London. 1903, Senior Examiner in Mathematics for Matriculation, University of London. Since 1904 Assistant Professor of Mathematics, University College, London, and since 1907 Senior Examiner in Mathematics for Final Degrees, University of London. Fellow of Royal Society, 1910.

121. Smith, James Henry, B.Sc. . <i>Nominated by Owens College, Manchester (now Victoria University of Manchester)</i>	1898-1900	Owens College, Manchester (permitted for special reasons)	Engineering.—Research on the fatigue of metals	M.Sc. Victoria (1900), D.Sc. Victoria (1903)	1901-4, Head of Engineering Department, Technical College, Sunderland. Since 1905 Professor of Mechanical Engineering, Municipal Technical Institute, Belfast. Holds a patent for a new type of fatigue tester.
122. Ashton, Arthur William, B.Sc. . <i>Nominated by Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)</i>	1898-1900	University College, London	Electrical Engineering.—The resistance of dielectrics and the effect of alternating electro-motive force on the insulating properties of india-rubber	M.Sc. Durham	1900-6, Assistant to Chief Engineer at Helsby and Liverpool works of British Insulated & Helsby Cables, Ltd. 1906, Assistant Lecturer and Demonstrator in Electrical Engineering, Leeds University. Since 1906 Head of Electrical Engineering Department, Battersea Polytechnic.
123. Peake, Austin Henry . . . <i>Nominated by University College, Nottingham</i>	1898-1900	Engineering Laboratory, Cambridge	Engineering.—The specific heat of superheated steam	B.A. Cambridge (1901), M.A. Cambridge (1905), A.I.E.E.	1900, Assistant Demonstrator in Engineering, University of Cambridge; 1903, University Demonstrator; 1908, Senior University Demonstrator.
124. Wills, Robert L., B.A., A.R.C.Sc.I. <i>Nominated by Royal College of Science for Ireland</i>	1898-1901	Cavendish Laboratory	Physics.—The effect of temperature on the magnetic properties of iron and alloys of iron	M.A. Cambridge	Director of Further Education under Kent Education Committee.
125. Butler, Edwin John, M.B. . . . <i>Nominated by Queen's College, Cork (now University College, Cork)</i>	1898-1900	Botanical Laboratories, Paris and Antibes; University of Freiburg; Royal Gardens, Kew	Botany.—Plant pathology; cryptogamic botany	Fellow of Linnean Society (1902), Member of Société Mycologique de France (1902)	1901, Cryptogamic Botanist to the Indian Government. Since 1906, Imperial Mycologist, Department of Agriculture in India. Also, 1910, Officiating Director, Agricultural Research Institute, Pusa.
126. Ryan, Hugh, M.A. <i>Nominated by Queen's College, Galway (now University College, Galway)</i>	1898-9	University of Berlin	Chemistry.—Amidoketones. The so-called synthesis of cane sugar. Synthesis of glucosides	Fellow and Examiner, Royal University of Ireland (1899), D.Sc. Royal University of Ireland (1899), F.I.C. (1904)	1899, Professor of Chemistry, University College, and Medical School, Dublin. 1903, elected member of the Royal Irish Academy. Since 1905 also Consulting Chemist of Apothecaries' Hall for Ireland.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
127. Smeaton, William Gabb, B.A. . <i>Nominated by University of Toronto</i>	1898-1900	University of Leipzig . . .	Physical Chemistry.—The translation value of the silver ion in a solution of silver nitrate. Copper hydroxide and copper oxide in their relationship to ammonia and ammonium salts	—	1902-5, Instructor in Chemical Engineering; 1905-10, Instructor in General Chemistry; 1910, Assistant Professor of General and Physical Chemistry. University of Michigan, U.S.A. Author of "Text Book of Qualitative Analysis from the Standpoint of Mass Action &c." Member of German Chemical Society, American Chemical Society, American Association for the Advancement of Science, and National Geographic Society.
128. Archibald, Ebenezer Henry, M.Sc. <i>Nominated by Dalhousie University, Halifax</i>	1898-1901	Harvard University . . .	Physical Chemistry.—The birth and growth of crystals; the equilibrium of mercury, mercurous chloride, and water solutions of other chlorides; the atomic weight of calcium	M.A. Harvard (1900), Ph.D. Harvard (1902)	1901-2, Assistant in Chemistry, Harvard College. 1902-4, Demonstrator in Chemistry, McGill University. 1904-6, Instructor in Chemistry; 1906, Assistant Professor; 1909, Associate Professor of Chemistry, Syracuse University, New York.
129. Mellor, Joseph William, B.Sc. . <i>Nominated by University of New Zealand</i>	1898-1901	Owens College, Manchester .	Chemistry.—The union of hydrogen and chlorine. Some alkyl substitution products of glutaric, adipic, and pimelic acids	D.Sc. New Zealand	Specialist in Clays Pottery (Staffordshire).
130. Irvine, James Colquhoun, B.Sc. <i>Nominated by University of St. Andrews</i>	1899-1901	University of Leipzig . . .	Organic Chemistry.—Synthesis of the hydrocarbon phenanthrene. Preparation and reactions of salicylaldehyde methyl ether.	Ph.D. Leipzig (1901), D.Sc. St. Andrews (1903) F.C.S.	1903, appointed Carnegie Research Fellow. 1904-9, Lecturer in Organic Chemistry, United College, University of St. Andrews, and in charge of the Chemical Research Laboratories. 1908, appointed to the Professorship of Chemistry, United College, reappointed by the Senate of the University of St. Andrews, by the resignation of Professor Fiedler.

1899-1901	University of Leipzig	Physical Chemistry.—The passivity of iron. The periodic phenomena accompanying the solution of iron. The action of persulphates on photographic negatives	B.Sc. Birmingham (1906)	Since 1901, Research Chemist to Rudge-Whitworth, Ltd., Coventry.
131. Heatheote, Henry Leonard, B.Sc. (London) Nominated by Mason University College, Birmingham (now University of Birmingham)	1899-1901	University College, London	—	Given up research work.
132. Walker, Winifred Esther (Mrs. S. R. Milner) Nominated by University College, Bristol (now University of Bristol)	1899-1902	Universities of Leipzig and Göttingen	M.Sc. Victoria (1900), Ph.D. Leipzig (1902), M.Sc. Leeds (1905)	1902-3, Chemist, National Physical Laboratory. Since 1903 Research Chemist to Hardman & Holden, and the Manchester Oxide Company, Manchester.
133. Skirrow, Frederick William, B.Sc. Nominated by Yorkshire College, Leeds (now University of Leeds)	1899-1902	Cavendish Laboratory	M.A. Cambridge, M.Sc. Victoria, D.Sc. Liverpool	1902-5, Oliver Lodge Fellow; 1905-9, Demonstrator and Assistant Lecturer in Physics, and 1906-9, Lecturer in Advanced Electricity, University of Liverpool. 1909 appointed Professor of Physics, King's College, London.
134. Barkla, Charles Glover, B.Sc. Nominated by University College, Liverpool (now University of Liverpool)	1899-1901	Thompson-Yates Laboratories, Liverpool, and Hygienic Institute, Vienna	D.Sc. London (1903)	1901-5, Assistant Bacteriologist, Royal Commission on Sewage Disposal, 1905-7, Jenner Memorial Student, Lister Institute of Preventive Medicine. Since 1907 Assistant, Lister Institute of Preventive Medicine.
135. Chick, Harriette, B.Sc. Nominated by University College, London	1899-1900	Central Technical College, South Kensington	B.Sc. London (1900)	1900-1, Demonstrator and Assistant Lecturer in Physics and Electrical Engineering, Heriot-Watt College, Edinburgh. 1901, took up work connected with the manufacture of electrical instruments. 1904, Lecturer in Physics, Hartley College, Southampton.
136. Tomlinson, Henry James Nominated by University College, London	1899-1901	University College, London, and University of Leipzig	M.Sc. Victoria (1902)	1902, Junior Demonstrator in Chemistry, Owens College. 1903, Chemist, Oldbury Electro-Chemical Co., Niagara Falls, N.Y. Since 1905 Works Manager to Oldbury Electro-Chemical Co.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
138. Campbell, William, B.Sc. <i>Nominated by Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)</i>	1899-1902	Royal College of Science, London; Columbia University, New York; and Royal School of Mines, London	Metallurgy.—Crystallisation produced in solid metal by pressure. Micro-structure of alloys. The influence of thermal and mechanical treatment upon alloys and metals	M.Sc. Durham (1903), Ph.D. Columbia (1903), D.Sc. Durham (1905), M.A. Columbia (1905)	1903-5, Barnard Fellow of Columbia University, New York. 1904, Instructor of Metallurgy; 1907, Adjunct Professor of Metallurgy; 1909 of Metallurgy; 1910, Associate Professor of Metallurgy, Columbia University. Since 1905 also Special Lecturer on European Geology. 1902, Carnegie Scholar, Iron and Steel Institute. 1903, Received Saville Shaw Medal from Newcastle Section of Society of Chemical Industry. 1904-5, Received grant from Carnegie Institute for research in iron and steel. Chairman of Committee, American Society for Testing Materials, on Non-Ferrous Metals and Alloys; Secretary of Committee on Alloy Steels; Member of Committees on (1) Methods of Testing, (2) Heat Treatment of Steel, (3) Corrosion. Member of Committee on Uniform Nomenclature, International Association for Testing Materials. Member of Committee on Heat Treatment of Iron and Steel, American Institute of Mining Engineers. Vice-President of New York Academy of Sciences and Chairman of Section of Astronomy, Physics, and Chemistry. Corresponding Member of Canadian Mining Institute. Member of Iron and Steel Institute. Fellow of Geological Society. Member of Board of Editors of <i>Journal of Engineering and Industrial Chemistry</i> and of <i>The School of Mines Quarterly</i> . 1906-9, Consulting Metallurgist, Taylor Iron & Steel Co. 1906-9,

139. Lownds, Louis, B.Sc. . . . <i>Nominated by University College, Nottingham</i>	1899-1902	University of Berlin . . .	Physics.—The electrical properties of bismuth in the magnetic field	Ph.D. Berlin	<p>1903, Professor of Zoology, Hartley University College, Southampton.</p> <p>1904, Superintendent of Fisheries for Lancashire and Western Sea Fisheries Committee. In 1908 was given leave of absence to undertake for Government of Bengal investigation on fisheries and their control in Bay of Bengal. 1909-10. Published several Reports on the fisheries of the Province and Bay of Bengal in the <i>Calcutta Official Gazette</i> ; 1910, Zoological papers on Fish of India and Persia in Records of Indian Museum, Calcutta. Has now resumed appointment under Lancashire and Western Sea Fisheries Committee.</p>	<p>Metallographer, United States Geological Survey. 1910, transferred to Bureau of Mines.</p> <p>Head of Physics Department, Chelsea Polytechnic.</p>
140. Jenkins, James Travis, B.Sc. <i>Nominated by University College of Wales, Aberystwyth</i>	1899-1901	University College of Liverpool ; Port Erin Biological Station ; Zoological Institute, Kiel ; Biological Institute, Heligoland	Zoology.—The minute anatomy of the oyster ; examination of trawling statistics ; methods and results of German Plankton investigations ; the otoliths of clupeoids as a criterion of age	D.Sc. Wales, Ph.D. Kiel		
141. Abell, Robert Duncombe, B.Sc. . <i>Nominated by University College of North Wales, Bangor</i>	1899-1902	University of Leipzig . . .	Organic Chemistry.—Condensation of phenyl-ethylketone with benzaldehyde and with ethyl-benzoate. Union of acetophenone with benzylidene-propionophenone, and of phenyl-ethylketone with benzylidene-acetophenone.	D.Sc. Wales (1903), Ph.D. Leipzig, F.I.C.	<p>Lecturer in Chemistry, University College of South Wales, Cardiff.</p> <p>Lecturer on Organic Chemistry, Newport Technical Institute. Lecturer on Inorganic Chemistry, City of Cardiff Technical School.</p>	
142 Caldwell, William, B.A. <i>Nominated by Queen's College, Belfast (now Queen's University of Belfast)</i>	1899-1901	University of Würzburg . . .	Chemistry.—The isomerism and tautomerism of the cyanic acid group of compounds. The β -hydroxy-butyric acids of diabetes. Polyvalent iodine compounds. Some phosphine compounds	M.A. Royal University of Ireland (1903)	<p>Senior Demonstrator in Physiological Department, and Lecturer in Chemistry and Physiological Chemistry to Indian Civil Service Candidates, Trinity College, Dublin.</p>	

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
143. McLean, William B., B.Sc. . <i>Nominated by McGill University, Montreal</i>	1899-1901	Owens College, Manchester	Engineering.—Valve leakage	—	1901-2, with Crossley Bros., Gas Engine Works, and experimenting for Nicolson Syndicate. 1902-5, Engineer for Union Bridge Iron Works, Manchester; 1905-7, Machinery Merchant in Montreal; 1907-8, with J. A. Jamieson, Grain Elevator Engineer, Montreal. Since 1908, Consulting Engineer, Montreal.
144. Steele, Bertram Dillon, B.Sc. . <i>Nominated by University of Melbourne</i>	1899-1902	Laboratory of Pharmaceutical Society; University of Breslau; and University College, London	Organic Chemistry.—Diamethyldiacetylacetone, tetramethylpyrone and orcinol derivatives from diacetylacetone. The measurement of ionic velocities in aqueous solution and the existence of complexions. The transport number of dilute salt solutions	D.Sc. Melbourne	Occupied positions on the staff of McGill University, Montreal, and the Heriot-Watt College, Edinburgh. Now lecturer and Demonstrator in Chemistry, University of Melbourne.
145. Fawcitt, Charles Edward, B.Sc. . <i>Nominated by University of Edinburgh</i>	1900-2	University of Leipzig.	Physical Chemistry.—The decomposition of urea	Ph.D. Leipzig, D.Sc. Edinburgh	1909, Professor of Chemistry, University of Sydney; formerly Lecturer in Metallurgical Chemistry, University of Glasgow.
146. Blyth, Vincent James, M.A. . <i>Nominated by University of Glasgow</i>	1900-2	Oxendish Laboratory	Physics.—The influence of the magnetic field on the thermal conductivity of metals. Distribution of potential in the electric discharge between various electrodes	—	Lecturer in Natural Philosophy Department, Glasgow and West of Scotland Technical College, Glasgow.
147. Moir, James, M.A., B.Sc. . <i>Nominated by University of Aberdeen</i>	1900-2	Central Technical College, South Kensington	Organic Chemistry — Derivatives of diphenol. Synthesis of alkylated purines	F.C.S. (1901), D.Sc. Aberdeen (1902)	Since 1904, Chemist to Government Mines Department, Johannesburg. Formerly chemist to H. Eckstein & Co., Johannesburg. 1906, Vice-President and 1910, President of Chemical Metallurgical Society of South Africa. 1908, Fellow and, 1910, Vice-President of Royal Society of South Africa.

148. Varley, William Mansergh, B.Sc. <i>Nominated by</i> Yorkshire College, Leeds (now University of Leeds)	1900-3	University of Strassburg and Cavendish Laboratory	Physics.—On the photo-electric dis- charge from metallic surfaces in different gases and other researches on photo-electric currents	Ph.D. Strassburg, D.Sc. Victoria and Leeds, B.A. and M.A. Cambridge	1903-8, Assistant Professor of Physics and Electrical Engineering, Heriot- Watt College, Edinburgh. 1904-8, Examiner in Practical Physics for the Central Welsh Board. 1908-10, Principal of Devonport Technical School. 1910, Principal of Swansea Technical College.
149. Humfrey, John Charles Willis, B.Sc., B.A. <i>Nominated by</i> University College, Liverpool (now University of Liverpool)	1900-2	Engineering Laboratory, Uni- versity of Cambridge	Engineering.—Microscopic examina- tion of the crystalline structure of metals and of effects of strain	B.A. Cambridge	1902-9, engaged upon various experi- mental and practical researches with Baldwins, Ltd., steel manufacturers, etc., Widen, Stourport, Worcester. 1909, appointed Assistant, De- partment of Metallurgy and Metal- lurgical Chemistry, National Physi- cal Laboratory.
150. Smiles, Samuel, B.Sc. . . . <i>Nominated by</i> University College, London	1900-2	University of Jena and Pro- fessor Moissan's Laboratory, Paris	Organic Chemistry; Mineralogy and Inorganic Chemistry.—Investigation of ethylene oxide and some of its reactions. On β methyl morphi- methin. On the subject of gases produced by the action of acids on magnesium silicide	D.Sc. London (1901), Fellow of Univer- sity College, London (1904)	1902, Assistant, Organic Chemistry Department, and, 1907, Assistant Professor of Organic Chemistry, Uni- versity College, London. Author of <i>Relations between Physical Pro- perties and Chemical Constitution</i> , 1910. Holds two patents for pro- cesses for preparing blue and red sulphur dye-stuffs.
151. Smith, Norman, B.Sc. . . . <i>Nominated by</i> Owens College, Manchester (now Victoria Uni- versity of Manchester)	1900-1	Laboratory of Professor van't Hoff in Berlin and the Uni- versity of Berlin	Chemistry.—The hydrates of mag- nesium sulphate	M.Sc. Victoria (1901), D.Sc. Victoria (1906)	1901-5, Assistant Lecturer in Chem- istry, Owens College, Manchester. 1906, Lecturer and Demonstrator in Chemistry; 1910, Senior Lecturer and Demonstrator in Chemistry, Vic- toria University of Manchester.
152. Lloyd, Lorenzo Lyddon <i>Nominated by</i> University College, Nottingham	1900-2	University of Berne . . .	Chemistry.—Synthesis of flavonol and flavone	Ph.D. Berne (1903)	Since 1903 Lecturer in Chemistry, Technical College, Bradford, and engaged in technical research.

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Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertainable
153. Embleton, Alice Laura, B.Sc. <i>Nominated by</i> University College of South Wales and Monmouthshire, Cardiff	1900-3	Balfour Laboratory, Cambridge	Economic Entomology.—The parasites of <i>Coccidæ</i> and other researches in economic entomology	Fellow, Linnean Society, London (1909), D.Sc. Wales (1909)	1903-4, Mackinnon Scholar, Royal Society. In 1904 assisted Professor Farmer in special research work on cancer at the Royal College of Science, London. 1905-9, held an appointment on the research staff, Cancer Research Laboratory (School of Preventive Medicine), Liverpool. 1909, continued research work in London at the Royal College of Science.
154. Cunningham, John A. <i>Nominated by</i> Royal College of Science for Ireland	1900-3	Cavendish Laboratory	Chemical Physics.—The discharge of electricity through gases at various pressures with electrodes of different metals, and especially carbon, at various temperatures	B.A. Cambridge M.A. Cambridge	1903-9, Professor of Chemistry, Presidency College, University of Calcutta. Since 1909, Inspector of Schools, Chota Nagpur Division, Bengal.
155. Mills, William Sloan, M.A. <i>Nominated by</i> Queen's College, Galway (now University College, Galway)	1900-3	University of Berlin	Chemistry.—Synthetical preparation of glucosides and of other sugar derivatives from the dichloro- and dibromo-acetyl sugar compounds. Action of oxides of nitrogen on oximido compounds	B.E. Royal University of Ireland (1905), D.Sc. Royal University of Ireland (1906)	1903, appointed Kodak Co.'s Research Assistant to Professor Senior. 1906, Lecturer in Chemistry, Woolwich Polytechnic.
156. Patterson, John, B.A. <i>Nominated by</i> University of Toronto	1900-2	Cavendish Laboratory	Electricity.—The electrical properties of thin metallic films. The ionisation in air at different temperatures and pressures. The change of resistance of metals when placed in a magnetic field	B.A. Cambridge (1902), M.A. Cambridge (1907)	1902-4, Professor of Physics, Muir Central College, Allahabad, India. 1905-9 Imperial Meteorologist to Indian Government. Officialised as Director-General of Observatories, India, for a few months in 1906 during absence of Director on leave. Since 1909 Physicist to the Meteorological Service of Canada.
157. Baker, William Coombs, M.A. <i>Nominated by</i> Queen's University, Kingston, Ontario	1900-2	Cavendish Laboratory	Electricity.—The behaviour of the Hall effect at low magnetic fields.	Member of American Physical Society (1907)	1902, Lecturer in Physics; 1908, Assistant Professor of Physics, School of Mining, Kingston, Ontario.

158. Barnes, James, M.A. <i>Nominated by Dalhousie University, Halifax</i>	1900-3	Johns Hopkins University, Baltimore	Physics.—Radiation under various conditions	Ph.D. Johns Hopkins University	1903-4, Fellow of Johns Hopkins University. Baltimore. 1904-6, Assistant in Physics, Johns Hopkins University. 1906-10, Associate in Physics; 1910, Associate Professor of Physics, Bryn Mawr College, Bryn Mawr, Pennsylvania.
159. Duraack, Jeremiah J. E., B.A. <i>Nominated by University of Sydney</i>	1900-3	Cavendish Laboratory	Physics.—The connection between the velocity and the mean free path of ions moving through a gas at some standard temperature and pressure	M.A.	Professor of Physics, Allahabad University, India; formerly Lecturer and Demonstrator in Natural Philosophy, King's College, London.
160. Horton, Frank, B.Sc. <i>Nominated by Mason University College, Birmingham (now University of Birmingham)</i>	1900-1 (Bursar) 1901-3 (Scholar)	Cavendish Laboratory	Physics.—The effect of temperature on the modulus of torsional rigidity	M.Sc. Birmingham (1901), B.A. Cambridge (1903), D.Sc. London (1903), M.A. Cambridge (1908)	1903-4, Granville Scholar, London University. 1903-4, Mackinnon Scholar of the Royal Society. 1904-5, Allan Scholar, Cambridge University. Since 1905 Supervisor of Physics Studies, St. John's College, Cambridge. 1905, Fellow of St. John's College, Cambridge. 1906-9, Clerk-Maxwell Scholar, Cambridge University.
161. Snook, Lillian Blinman Voss, B.Sc. [Lond.] (Mrs. Hudson) <i>Nominated by University College, Bristol (now University of Bristol)</i>	Bursar (1900-1) (Did not apply for Scholarship)	University College, Bristol	Physics.—Electrical discharge (from points) in various gases	B.Sc. Bristol (1910)	1901-3, Science Mistress, Aske's Haberdashers' Girls' School, West Acton. 1904-5, Senior Mathematical (and Physics) Mistress, Lady Holles' Girls' School, Hackney.
162. Baker, Thomas, B.Sc. <i>Nominated by Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)</i>	1900-1 (Bursar) 1901-3 (Scholar)	University of Sheffield	Metallurgy.—The influence of silicon on the microstructure, and the mechanical and physical properties of iron	M.Sc. Durham, M.Met. Sheffield (1908), F.I.C. (1908) D.Sc. Durham (1909)	Since 1903 has been works manager and chemist to New Vanadium Alloys, Ltd. Carnegie Scholar, 1908.
163. Craw, John Anderson <i>Nominated by University of Glasgow</i>	1901-2 (Appointed for one year only)	University of Göttingen	Physics.—Surface tension of mercury; and the capillary electrometer	—	Deceased in June 1909. Had been working in the London Hospital Medical College for 3 years, 1906-9, as a Grocers' Research Scholar.

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164. Slaton, Arthur, B.Sc. . . . <i>Nominated by University of Birmingham</i>	1901-3	University of Leipzig . . .	Chemistry.—The chemical dynamics of the chlorination of benzene. The chemical dynamics of the reactions of organic halogen compounds. The dynamics of alcoholic fermentation.	M.Sc. Birmingham (1901), Ph.D. Leipzig (1903), F.I.C. (1905) D.Sc. Birmingham (1906) D.Sc. London (1910)	1903-5, Lecturer and Demonstrator, University College, Nottingham. Since 1905 Research Chemist to Bass, Ratcliff & Gretton, Burton-on-Trent.
165. Denison, Robert Beckett, B.Sc. . . <i>Nominated by Yorkshire College, Leeds (now University of Leeds)</i>	1901-4	University of Breslau; University of Berlin; University College, London	Physical Chemistry.—Transport number measurements in extremely dilute solution. Direct measurement of transport numbers with special regard to the influence of endosmose. On the possible co-existence of astrakanite and kainite. On the vapour tensions of saturated salt solutions. On the equilibrium of sodium and magnesium sulphates. Investigations upon certain rare minerals	Ph.D. Breslau (1903), M.Sc. Leeds (1905), D.Sc. Leeds (1907)	1905, Lecturer; 1906, Assistant Professor and Chief Assistant, in Chemistry, Heriot-Watt College, Edinburgh; 1910, Professor of Chemistry and Physics, Natal University College, Pietermaritzburg.
166. Owen, Gwilym, B.Sc. . . . <i>Nominated by University College, Liverpool (now University of Liverpool)</i>	1901-4	Cavendish Laboratory . . .	Physics.—On the proportion of corpuscles and particles in the negative radiation from hot platinum. On the condensation nuclei from hot platinum. On the discharge of electricity from Nernst filaments	B.A. Cambridge (1904), M.A. Cambridge (1907), D.Sc. Liverpool (1908)	Since 1904 Demonstrator and Assistant Lecturer in Physics, University of Liverpool. Also for three years Examiner in Mechanics and Physics for the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield.
167. Senter, George, B.Sc. . . . <i>Nominated by University College, London</i>	1901-3	University of Leipzig and Göttingen	Chemistry.—Investigations of organic catalysts	Ph.D. Leipzig D.Sc. London	Lecturer in Chemistry, Sir John Cass Institute and St. Mary's Hospital Medical School. Examiner in Chemistry, Royal College of Physicians of London and Royal College of Surgeons of England. Member of Council of the Faraday Society. Author of "Outlines of Physical Chemistry" (Methuen & Co., 1909).

168. Rixon, Frederic William, B.Sc. <i>Nominated by Owens College, Manchester (now Victoria Uni- versity of Manchester)</i>	1901-3	University of Gießen	Chemistry.—Electrolysis of phosphor- ous and hypophosphorous acids	M.Sc. Victoria (1903), Ph.D. Gießen (1903)	1907, Assistant Professor of Chemistry, Merchant Venturers' Technical Col- lege, Bristol; previously Head Science Master, Newton Abbot Technical Schools. Since 1909 Lecturer in Chemistry, University of Bristol.
169. Laws, Samuel Charles, B.Sc. <i>Nominated by University College, Nottingham</i>	1901-4	Cavendish Laboratory	Physics.—Thermo-electric and thermo- magnetic properties of alloys of bis- muth and tin	B.A. Cambridge (1904), M.A. Cambridge (1908)	1904-5, Junior Lecturer in Physics at King's College, London. 1905-09, Head of Physics Department, Technical School, Blackburn. Since 1909 Principal of the Technical In- stitute, Loughborough.
170. Smith, Alice Emily, B.Sc. <i>Nominated by University College of North Wales, Bangor</i>	1901-3	Owens College, Manchester	Organic Chemistry.—Synthesis of di- methylglutaric acid and di-methyl- glutaconic acid. Synthesis of tri- methylglutaric acid and of tri-methyl- glutaconic acid	—	Assistant Lecturer in Chemistry at the University College of North Wales.
171. Hawthorne, John, B.A. <i>Nominated by Queen's College, Belfast (now Queen's University of Belfast)</i>	1901-3	University of Jena	Organic Chemistry.— Derivatives of morphine	Ph.D. Jena	1903, Junior Fellow, Royal Uni- versity of Ireland. 1904, Assistant Lecturer in Chemistry, Queen's Col- lege, Cork. Since 1906 Professor of Chemistry, Municipal Technical In- stitute, Belfast.
172. McClung, Robert K., M.A. <i>Nominated by McGill University, Montreal</i>	1901-4	Cavendish Laboratory	Electricity.—Effect of temperature on rate of recombination of ions. Effect of temperature of gases on the ioni- sation produced by Röntgen rays in these gases. Relative amount of ionisation produced in gases by Röntgen rays of different types	B.A. Cambridge, D.Sc. McGill (1906)	1904-7, Senior Demonstrator of Physics, McGill University, Mont- real. 1907-9, Professor of Physics, Mount Allison University, Sackville, New Brunswick. Since 1909 Lec- turer in Physics, University of Mani- toba, Winnipeg. Elected, 1908, Fellow of the American Association for the Advancement of Science.
173. Dickson, Charles William, M.A. <i>Nominated by Queen's University, Kingston, Ontario</i>	1901-4	Columbia University, New York, and University of Heidelberg	Geology, Chemistry, and Metallurgy.— The Sudbury ore deposits, geologic- ally, chemically, and mineralogically. Condition of platinum in various ores. The nickel-copper ore deposits near St. Stephen, Canada	Ph.D. Columbia	Lecturer in Chemistry, School of Mining, Kingston, Ontario.

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Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
174. Harker, George, B.Sc. <i>Nominated by University of Sydney</i>	1901-3	Central Technical College, London	Organic Chemistry.—The thio derivatives of the xylenes	D.Sc. London	Since 1903 Research Chemist to the Colonial Sugar Refining Co., Ltd., Australia. Inventor of the Harker Patent Fire Extinguisher and Fumigator, which is now being used with marked success on ships.
175. MacLaren, James Malcolm, D.Sc. <i>Nominated by University of New Zealand</i>	1901-2	Royal Institution	Geology.—The geology of gold	—	1901-6, Mining Adviser to Government of India. 1906-8, author of "Gold ; its geological occurrence and geographical distribution" (London, 1908). 1908-10, engaged in the examination of the Kalgurli gold-field, Western Australia.
176. Dow, Charles Robert, B.Sc. <i>Nominated by Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)</i>	1901-2 (Bursar), 1902-4 (Scholar)	Durham College of Science ; Königliche Technische Hochschule, Aachen, Prussia	Chemistry.—The ignition of mixtures of marsh gas and air with reference to the use of electricity in mines	M.Sc. Durham (1905)	1904-7, Science Master, Endowed Schools, Stroud, and Lecturer in Chemistry, School of Science and Art, Stroud. Since 1907 Chemistry Master, Erith County School and Technical Institute, Belvedere, Kent.
177. Waterhouse, George Booker <i>Nominated by University College, Sheffield (now University of Sheffield)</i>	Bursar (1901-2), Scholar (1902-4)	Columbia University, New York	Metallurgy.—The influence of sulphur and manganese on steel. Bar iron research. Influence of nickel and carbon on iron. The burning, overheating, and restoring of nickel steel	Ph.D. Columbia (1907), B.Met. Sheffield (1907)	1904-6, Assistant Professor, Department of Metallurgy, Columbia University, New York. 1907-10, Professor of Metallurgy, and 1910, Special Lecturer in Metallurgy, University of Buffalo. Also, 1906-10, Metallographist, Lackawanna Steel Co., Buffalo, N.Y., and since 1910 Metallurgist with same Company.
178. Cooke, William Tennent, B.Sc. <i>Nominated by University of Adelaide</i>	1901-2 (Bursar), 1902-4 (Scholar)	University College, London	Inorganic Chemistry.—On the reduction of hydrazoic acid. Experiments on the vapour densities of zinc and other metals	D.Sc. Adelaide (1905)	Appointed, 1906, Lecturer on Chemistry, as assistant to the Professor, University of Adelaide. Also External Examiner in Assaying to the School of Mines, South Australia, and Examiner in Inorganic Chemistry to the Pharmacy Board of South Australia.

179. Inglis, John K. H., M.A., B.Sc. Nominated by University of Edinburgh	1902-3 (Eighteen months)	University College, London	Chemistry.—Suggested theory of the aluminium anode. The loss of nitre in Chamber process. Isothermal distillation	D.Sc. Edinburgh (1906)	Resigned his Scholarship Christmas, 1903, on being appointed Assistant in Chemical Department of University College, London. In 1906 appointed Lecturer and in 1907 Professor of Chemistry, University College, Reading.
180. Wood, Alexander, B.Sc. Nominated by University of Glasgow	1902-4	Cavendish Laboratory	Physics.—Radio-activity of ordinary metals and of salts of the alkali metals. Diurnal periodicity of spontaneous ionisation in closed metal vessels	B.A. Cambridge (1904), M.A. Cambridge (1909), D.Sc. Glasgow (1906), Fellow of Emmanuel College (1907)	1904, Supervisor of Studies in Physics and Chemistry; 1905, Lecturer in Physics and Chemistry, Emmanuel College. 1908, University Demonstrator in Physics. 1910, Tutor of Emmanuel College.
181. Wallace, William, B.Sc. Nominated by University of St. Andrews	1902-3	Zoological Stations, Plymouth and Naples	Marine Zoology.—Ovaries of fishes and of <i>temopteris</i>	D.Sc. St. Andrews (1904)	Resigned at end of first year on being appointed Naturalist to the Marine Biological Association of the United Kingdom. 1910, appointed to the Board of Agriculture and Fisheries as Naturalist for International Fishery Investigations.
182. Michie, Arthur Cumming, B.Sc. Nominated by University of Aberdeen	1902-4	University of Leipzig	Physical Chemistry.—The electrolytic behaviour of uranium salts	D.Sc. Aberdeen (1906)	Appointed, 1906, technical chemist to Merz & McLellan, Consulting Electrical Engineers, Newcastle-on-Tyne, and transferred in 1908 to their Wallsend Laboratories.
183. Lloyd, John Alexander, B.Sc. (London), M.Sc. (Birmingham), F.I.C. Nominated by University of Birmingham	1902-3	University of Würzburg	Chemistry.—The pseudo-basic nature of nitro-anilines and nitrosoanilines. Coal tar dyes and intermediate products	Ph.D. Würzburg (1903)	Resigned his scholarship in September 1903, on being appointed to the Chemical and Patent Staff of the Badische Anilin und Soda Fabrik, Ludwigshafen am Rhein, which position he still holds.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
184. Dakin, Henry Drysdale, B.Sc. <i>Nominated by</i> Yorkshire College, Leeds (now University of Leeds)	1902-5	Jenner Institute and University of Heidelberg	Physiological Chemistry.—Chemistry of enzymes	F.I.C. (1902), M.Sc. Leeds, and D.Sc. Leeds (1907)	Engaged in independent research in private laboratory of Dr. C. A. Herter, New York. During the last three years his chief subject of research has been the chemical aspects of the oxidation processes of the animal body; the results of which have been published mainly in the <i>Journal of Biological Chemistry</i> , New York.
185. Rogers, Frank, B.Sc. <i>Nominated by</i> University College, Liverpool (now University of Liverpool)	1902-4	Engineering Laboratory, Cambridge	Engineering.—Repetition of stress on steel	B.A. Cambridge, M.Sc. Victoria, M.Eng. Liverpool	Appointed, 1904, Carnegie Research Scholar of Iron and Steel Institute. 1905, awarded John Wimbolt Prize (Cambridge). 1904-5, Demonstrator in Engineering Laboratory, Cambridge. 1905, Assistant Metallurgist in Chemical Research Department (now Mechanical Branch, Research Department), Royal Arsenal, Woolwich. 1909, Assistant, Engineering Department, National Physical Laboratory. November, 1909, appointed Metallurgical Adviser to Messrs. Rendel & Robertson, Consulting Engineers to the Indian State Railways.
186. Harrison, Edward Philip <i>Nominated by</i> University College, London	1902-5	Federal Polytechnic, Zürich, and Cavendish Laboratory	Physics.—The magnetic properties of iron, nickel, and cobalt	Ph.D. Zürich, B.A. Cambridge	Professor of Physics, Presidency College, University of Calcutta.
187. Simpson, George Clarke, B.Sc. <i>Nominated by</i> Owens College, Manchester (now Victoria University of Manchester)	1902-5	University of Göttingen and the village of Karasfok, Norway, and the Meteorological Office, London	Atmospheric Electricity.—The absorption of electricity from ionised air. Observations in atmospheric electricity. Atmospheric electricity in high latitudes. The relation between the Beaufort scale and the velocity of wind	M.Sc. Victoria (1905), D.Sc. Victoria (1906)	1905, Lecturer in Meteorology and Assistant Lecturer in Physics, Victoria University of Manchester. 1906, Scientific Assistant, Meteorological Office, Simla, India. Now Physicist and Meteorologist to the British Antarctic Expedition 1910.

188. Goodwin, William, B.Sc. <i>Nominated by Queen's College, Galway (now University Col- lege, Galway)</i>	1902-4	University of Göttingen and Museum of Natural History, Paris	Chemistry.—Chemistry of the carbo- hydrates	M.Sc. Victoria, Ph.D. Göttingen	1904-6, research in Chemistry at Manchester and Göttingen. 1906, Lecturer on Chemistry and Physics, Harper-Adams Agricultural College, Newport, Salop. 1907, Lecturer on Agricultural Chemistry and Head of Chemistry Department, South- Eastern Agricultural College, Wye, Kent, and Examiner in Agricultural Chemistry, University of London.
189. Bray, William Crowell, B.A. <i>Nominated by University of To- ronto</i>	1902-4	University of Leipzig.	Physical Chemistry.—The behaviour of chlorine dioxide, chlorous acid and chlorites in solution; the primary oxidation of iodide-ion; the use of the differential equation in calculating the results of kinetic measurements.	Ph.D. Leipzig (1905)	1905-10, Research Associate, and since 1910 Assistant Professor of Physico- Chemical Research, Massachusetts Institute of Technology, Boston, Mass., U.S.A.
190. Hebb, Thomas Carlyle, M.A. <i>Nominated by Dalhousie Uni- versity, Halifax, Nova Scotia</i>	1902-4	Chicago University	Physics.—The determination of the velocity of sound	Ph.D. Chicago	1904-5, Lecturer in Physics, Dalhousie College. 1905-6, Instructor in Physics, Central High School, St. Louis, Illinois. 1906-7, Assistant for the American Telephone and Tele- graph Co., and Westinghouse Electric & Manufacturing Co. Since 1907, Head of Physics and Chemistry Departments, Northern State Nor- mal School, Marquette, Michigan.
191. Hosking, Richard <i>Nominated by University of Mel- bourne</i>	1902-5	Cavendish Laboratory, and University of Sydney	Physics.—The fluidity and electrical conductivity of solutions. Viscosity of liquids at high rates of shear	B.A. Cambridge	Physics Master, Sydney Grammar School, New South Wales.
192. Hunter, Matthew Albert, B.Sc. <i>Nominated by University of New Zealand</i>	1902-5	University College, London, University of Göttingen, Uni- versity of Paris, and Techni- cal High School, Karlsruhe	Inorganic Chemistry.—Lowering the vapour pressures of liquefied gases by the presence of other liquefied gases dissolved in them. The com- plexity and chemical properties of thorium	D.Sc. London	Working in research Laboratory, General Electric Co., New York. Assistant Professor of Physics and Electrochemistry, Reusslaer Poly- technic Institute, Troy, N.Y.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
193. Radford, Catherine, B.Sc. (Mrs. J. F. Dow) <i>Nominated by</i> University College, Sheffield (now University of Sheffield)	Bursar (1902-3), Scholar (1903-5)	Victoria University of Manchester	Physics.—Mapping the spectra of the oxides, chlorides, bromides and iodides of barium, strontium, and calcium	B.Sc. Sheffield (1908)	1905-8, Physics and Mathematics Mistress, Manchester High School for Girls. Since 1909 Assistant Examiner in Mathematics for Joint Matriculation Board for Manchester, Liverpool, Leeds, and Sheffield Universities.
194. Thompson, Kenworthy James, B.Sc. <i>Nominated by</i> University College of Wales, Aberystwyth	Bursar (1902-3), Scholar (1903-5)	University College, Aberystwyth, and University of Leipzig	Organic Chemistry.—The action of alkalis on cinnamic-acid dibromide and its esters. On β bromo-cinnamic acids and on diazonium compounds	Ph.D. Leipzig	Agricultural Chemist to Liverpool Institute for Commercial Research in the Tropics.
195. Edmonds, Sydney Arthur, A.R.C.Sc.I. <i>Nominated by</i> Royal College of Science, Dublin	1902-3 (Bursar), 1903-5 (Scholar)	Royal College of Science for Ireland and Cavendish Laboratory	Physics.—The thermal conductivity of some alloys of iron. Quasi-radio activity induced by the point discharge, and an investigation of the ratio between the velocities of the positive and negative ions in monatomic gases	F.R.C.Sc.I.	1905-7, Oliver Lodge Fellow, University of Liverpool. 1907, Assistant Demonstrator, and 1910, Assistant Lecturer and Demonstrator in Physics, University of Leeds.
196. Stewart, Alfred Walter, B.Sc. <i>Nominated by</i> University of Glasgow	1903-5	University College, London	Organic Chemistry.—Addition of sodium bisulphite to ketones and velocity of oxime formation	D.Sc. Glasgow (1907)	1905-8, Carnegie Research Fellow. 1907-9, Lecturer in Stereo-Chemistry, University College, London. Since 1909, Lecturer on Organic Chemistry, Queen's University, Belfast. Author of "Stereochemistry" (1907); "Recent Advances in Organic Chemistry" (1908); "Stereo-chemie" (1909); and "Recent Advances in Physical and Inorganic Chemistry" (1909).
197. Paul, David McLaren, B.Sc. <i>Nominated by</i> University of St. Andrews	1903-5	University of Berlin	Organic Chemistry.—On acids containing an asymmetric carbon atom. On asymmetric synthesis and decomposition	—	1907-8, Temporary Chemical Assistant at Research Department, Royal Arsenal, Woolwich. 1908, chemist to Messrs. Curtis's & Harvey, explosives manufacturers, Cliffe, Kent, and transferred in 1909 to their Tonbridge factory.

198. Gebhard, Norman Leslie, B.Sc. (London), M.Sc. (Birmingham) <i>Nominated by University of Birmingham</i>	1903-5	Federal Polytechnic, Zürich	Organic Chemistry.—Concerning derivatives of glyoxim and mononitroglyoxim, &c., and work in general concerning amin oxides and other organic chemical researches	Ph.D. Basle	Until 1909, Lecturer and Demonstrator in Chemistry at Municipal Technical School, Derby. Now with the Neva Stearine Co., Moscow, as chief chemist with technical control of Moscow works.
199. Gaunt, Rufus, B.Sc. . . . <i>Nominated by Yorkshire College, Leeds (now University of Leeds)</i>	1903-6	University of Berlin . . .	Chemistry.—On the acetic fermentation	Ph.D. Berlin	Assistant Lecturer on Agricultural Chemistry, University College of North Wales, Bangor.
200. Spencer, James Frederick, B.Sc. . <i>Nominated by University College, Liverpool (now University of Liverpool)</i>	1903-6	University of Breslau and University College, London	Chemistry.—On the electro-chemistry of thallium compounds. The action of ultra-violet light on metals and compounds. Dilute amalgams. Magnesium and other metals in their action on organic halides. Quantitative separation of silver and thallium	Ph.D. Breslau (1904), M.Sc. Liverpool (1903), D.Sc. Liverpool (1907)	Since 1906 Lecturer in Chemistry, Bedford College, University of London, and Demonstrator in Chemistry at Sir John Cass Technical Institute.
201. Bassett, Henry, B.Sc., A.I.C. . <i>Nominated by University College, London</i>	1903-5	Universities of Munich and Nancy	Chemistry (Organic and Inorganic).—Research in ortho-amido-triphenylmethane derivatives, with special regard to their evidence in support of the quinonoid formulæ of the Fuchsine dyes	Ph.D. Munich (1904), D. ès Sc. Nancy (1905), F.I.C. (1905), D.Sc. London (1908)	Since 1905 Demonstrator and Assistant Lecturer in Chemistry, University of Liverpool. Has been engaged in hydrographic investigations in the Irish Sea.
202. Bradshaw, Lawrence, B.Sc. . . <i>Nominated by Owens College, Manchester (now Victoria University of Manchester)</i>	1903-6	University of Giessen and Victoria University of Manchester	Chemistry.—On the electrolytic oxidation of nitrites; on the electrolytic dissociation of some complex salts; on the temperatures of the volatilisation of metals in the electric furnace	M.Sc. Victoria (1903), Ph.D. Giessen (1905), D.Sc. Victoria (1907)	1906-7. Lecturer in Chemistry, Harper-Adams Agricultural College, Newport, Salop. 1907-8, Schunck Research Assistant in Chemistry, Victoria University of Manchester. Since 1908 Assistant Manager of the Backus & Johnston Mining and Smelting Works, Casapalca, Peru.
203. Black, Thomas Porteous, M.A., B.Sc. <i>Nominated by Durham College of Science (now Armstrong College, Newcastle-upon-Tyne)</i>	1903-5	University of Strassburg . . .	Electricity.—On the resistance of coils of wire for electrical oscillations of high frequency	Ph.D. Strassburg (1905), M.Sc. Durham (1906)	1905-6, Demonstrator in Physics, Armstrong College, and since 1906 Lecturer and Demonstrator in Physics, University College, Nottingham.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
204. Tattersall, George, B.Sc. London <i>Nominated by</i> University College, Nottingham	1903-6	Victoria University of Manchester	Chemistry.—On the chemistry of the terpenes	M.Sc. Victoria	1906, appointed Research Chemist to the Calico Printers' Association (Manchester). Recently appointed Lecturer in Mathematics and Physics at Technical School, Perth, Western Australia.
205. Cooke, Hereward Lester, M.A. <i>Nominated by</i> McGill University, Montreal	1903-6	Cavendish Laboratory	Physics.—Experiments on the penetrating radiation and on the velocity of light. Thermionics	—	Appointed in 1906 Assistant Professor, Department of Physics, Princeton University, New Jersey, U.S.A.
206. Boyd, Arthur, B.Sc., B.E. <i>Nominated by</i> University of Sydney	1903-5	King's College, London	Electricity.—Starting of the Heyland single-phase induction motor. Experiments on iron losses and leakage in induction motors at standstill	D.Sc. London (1905)	1905-7, in the Electrical Design Department of Siemens Brothers, Electrical Engineers, Stafford. Since 1907 Assistant Electrical Engineer, East Indian Railway.
207. Priestley, Joseph Hubert, B.Sc. <i>Nominated by</i> University College, Bristol (now University of Bristol)	Bursar (1903-4) (Did not apply for Scholarship)	University College, Bristol	Botany.—Cytology of <i>Uredinæ</i>	Fellow of Linnean Society	Lecturer in Botany, University of Bristol
208. Carse, George Alexander, M.A., B.Sc. <i>Nominated by</i> University of Edinburgh	1904-7	Cavendish Laboratory	Physics.—On the opacity of aluminium foil to ions from a flame; on the variation of the coefficient of recombination of the ions with the temperature; on the emission of positive electricity by heated metals and salts; on a relation between the velocity and the volume of the ions of certain organic acids and bases; on molecular sizes. A relation between the velocity and volume of organic ions in aqueous solutions	D.Sc. Edinburgh	1907, appointed Lecturer in Natural Philosophy, University of Edinburgh. 1908, also appointed Lecturer in Statistics.

209. Houstoun, Robert Alexander, M.A., B.Sc. <i>Nominated by University of Glasgow</i>	1904-6	University of Göttingen and Cavendish Laboratory	Physics.—On the effect of temperature on the absorption bands of solids and liquids. The effect of a surface film in total-reflection. Total-reflection at the second surface of a thin plane parallel plate	Ph.D. Göttingen (1906), D.Sc. Glasgow (1907)	Since 1906 Assistant in Natural Philosophy, and since 1908, Lecturer on Optics (Natural Philosophy Department), University of Glasgow.
210. Knox, Joseph, B.Sc. <i>Nominated by University of Aberdeen</i>	1904-6	University of Breslau	Chemistry.—The nature of the ionic equilibrium in complex solutions containing mercury and sulphur	D.Sc. Aberdeen (1907)	1906-9, Assistant to Professor of Chemistry, and Carnegie Research Fellow, Aberdeen University. 1909, appointed Lecturer in Inorganic Chemistry, University of Aberdeen.
211. Phillips, Percy, M.Sc. <i>Nominated by University of Birmingham</i>	1904-6	Cavendish Laboratory	Physics.—Determination of the velocities of the ions produced by Röntgen rays in air at different temperatures	B.A. Cambridge (1906), D.Sc. Birmingham (1907)	Professor of Physics at the Royal Veterinary College, Camden Town, since 1906.
212. Raper, Henry Stanley, B.Sc., A.I.C. <i>Nominated by University of Leeds</i>	1904-7	Lister Institute of Preventive Medicine and University of Strassburg	Chemistry.—The influence of position isomerism upon optical activity in organic compounds; the synthesis of fatty acids from lactic acid; the condensation of aldol. The composition of peptone	M.Sc. Leeds D.Sc. Leeds M.B., Ch.B. Leeds	Formerly engaged in Research work, Physiological Laboratory of Leeds University; also Demonstrator in Physiology. Now Lecturer in Pathological Chemistry, University of Toronto, Canada.
213. Haworth, Harold Firth, B.Sc. <i>Nominated by University of Liverpool</i>	1904-6	Federal Polytechnic, Zürich	Physics and Electrotechnics.—The electrical qualities of porcelain	B.Eng. Liverpool, Ph.D. Basle, M.Sc. Victoria, A.M.I.E.E.	Formerly Demonstrator and Assistant Lecturer in Electrotechnics, Central Technical College, South Kensington, and Head of the Physics Department (Board of Education Evening Classes) of Tottenham Polytechnic. 1910, Head of Electrical Engineering Department at Acton and Chiswick Polytechnic (Evening Classes). Member of the Electrical Engineering Board of Studies of the University of London.
214. Noble, Henry Robertson, B.Sc. <i>Nominated by University College, London</i>	1904-5	University of Gießen	Physics.—Optical phenomena of vapours, especially fluorescence and absorption	—	[Deceased.]

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
215. Foster, Glyn William Arnold, Nominated by Victoria University of Manchester	1904-6	Technical High School, Karlsruhe	Physical Chemistry.—The action of the silent electric discharge upon chlorine and the action of light upon potassium ferro-cyanide in aqueous solution	—	1906, Chemist to Saltpetersäure Industrie Gesellschaft, Innsbruck, Tyrol, and since 1907 Chief Chemical Engineer for their various factories.
216. Salway, Arthur H., B.Sc. Nominated by University College, Nottingham	1904-6	University of Leipzig	Chemistry.—On the isomerism exhibited by pseudo-acids, etc. On a few nitro-compounds, with especial consideration of the relation between colour and constitution	Ph.D. Leipzig (1906)	Since 1906 in Research Laboratories of Burroughs Wellcome & Co., Chemists, London.
217. Caldwell, Kenneth Somerville, B.Sc. Nominated by University College of North Wales, Bangor	1904-6	University of Leipzig	Chemistry.—Electric conductivities in pyridine solution. Influence of temperature on the electric conductivities of pyridine solutions. On the migration of the ion C_5H_5 NH in pyridine solution, the ions H and CH' in aqueous solution. Indirect proof of the existence of aci-nitro products	Ph.D. Leipzig F.I.C. London	Formerly Demonstrator in Chemistry, St. Bartholomew's Hospital. Now Professor of Chemistry, Patna College, Bengal.
218. Burton, Eli Franklin, B.A. Nominated by University of Toronto	1904-6	Cavendish Laboratory, and the University of Birmingham for a short period	Physics.—On the properties of electrically prepared colloidal solutions. The actions of electrolytes on colloidal solutions. The susceptibility of iron on colloidal solution	B.A. Cambridge (1906) Ph.D. Toronto (1910)	In 1906, appointed Senior Demonstrator in Physics, University of Toronto. Awarded 1909, a Special Dissertation Prize by Emmanuel College, Cambridge, for thesis on the Physical Properties of Colloidal Solutions.
219. Knight, Cyril Workman, B.Sc. Nominated by Queen's University, Kingston, Ontario	1904-6	Columbia University, New York	Geology.—Notes on some deposits in the Eastern Ontario gold belt and several other researches in geology	—	1907, Assistant Provincial Geologist of Ontario, Canada.

220. Ross, William Horace, M.Sc. <i>Nominated by Dalhousie University, Halifax, Nova Scotia</i>	1904-7	Johns Hopkins University and University of Chicago	Chemical Physics.—The chemical action of ultra-violet light. The relation between the radio-activity and the composition of thorium compounds. The specific radio-activity of uranium. The variation of the activity with chemical treatment and with time. The relation between the radio-activity and the composition of thorium and uranium minerals	Ph.D. Chicago (1907)	Since 1907 Associate Chemist at Agricultural Experiment Station of University of Arizona, Tucson, U.S.A.
221. Cumming, Alexander Charles, B.Sc. <i>Nominated by University of Melbourne</i>	1904-7	University College, Dundee; University of Breslau; University College, London	Chemistry.—The affinity constants of amphoteric electrolytes; methyl derivatives of ortho- and meta-aminobenzoic acids; on the electro-chemistry of lead; contributions to the study of strong electrolytes; on the source of the radio-activity of the mineral malacene, a silicate of zirconium	D.Sc. Melbourne	1907, Lecturer and Demonstrator in Chemistry at Birkbeck College, London. 1908, Lecturer and Second Assistant in Chemistry Department, University of Edinburgh.
222. Andrew, Arthur Robert, B.Sc. <i>Nominated by University of New Zealand</i>	1904-6	University of Birmingham.	Geology.—The geology of the gold-bearing veins of Merionethshire	M.Sc. Birmingham (1906), F.G.S. (1906), Assoc.I.M.M.	1906, appointed on the staff of the Imperial Institute to conduct a Geological Survey in British Central Africa (Nyasaland). 1910, appointed Consulting Geologist for mineral oil to a City syndicate.
223. Logeman, Willem Hendrik, M.A. <i>Nominated by South African College, Cape Town</i>	1904-7	Cavendish Laboratory	Physics.—The production of secondary rays by α -rays from polonium	—	Lecturer in Physics, South African College, Capetown.
224. Sibly, Thomas Franklin, B.Sc. <i>Nominated by University College, Bristol (now University of Bristol)</i>	Bursar (1904-5), Scholar (1905-7)	University College, Bristol, and University of Birmingham	Geology.—Carboniferous rocks in Mid-lands and in Mendip Hills, Somerset. Investigation of the faunal succession in the Lower Carboniferous rocks of these areas	D.Sc. London (1908) D.Sc. Bristol (1910)	1908, Lecturer and Demonstrator in Geology; 1909, Lecturer in charge of the Geological Department, King's College, London.

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Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
225. Smith, Stanley Parker, B.Sc. <i>Nominated by Armstrong College, Newcastle-upon-Tyne</i>	Bursar (1904-5), Scholar (1905-7)	Armstrong College, and Elektrotechnisches Institut, Karlsruhe	Electrical Engineering.—Determination of flux distribution in commutating pole machines. Measurement of iron losses in pole shoes due to armature teeth; calculation of characteristic curves of single-phase series commutator motors; investigation of application of no-load and short-circuit diagram to induction motors	A.M.I.E.E. (1909) M.Sc. (1910)	1907, engaged in technical design of alternating-current machinery and in special work at Siemens Bros.' Dynamo Works, Stafford. Also Lecturer in Advanced Electrical Engineering at Stafford Technical School. 1909, appointed Head Designer at General Electric Co., Witton, Birmingham.
226. Carnwath, Thomas, B.A., M.B., B.Ch. <i>Nominated by Queen's College, Belfast (now Queen's University of Belfast)</i>	1904-5 (Bursar), 1905-7 (Scholar)	Queen's College, Belfast; Hygienic Institute, Hamburg; and Reichsgesundheitsamt, Berlin	Bacteriology and Chemistry.—The relation of bacterial flora of shell-fish to sewage pollution of surrounding water; bacteriological survey of Belfast Lough; the dispersal of nitrogen by bacteria; absorption in bacteria beds; denitrification; intermittent filtration; diphtheria in fowls	Diploma of Public Health, Cambridge (1906)	1907, Assistant Physician, Infectious Diseases Hospital, Salford. 1908, Assistant Medical Officer of Health, Manchester. 1910, Medical Inspector H.M. Local Government Board.
227. Innes, Peter David, M.A., B.Sc. <i>Nominated by University of Edinburgh</i>	1905-8	Cavendish Laboratory	Physics.—The velocity of the kathode particles emitted by various metals under the influence of Röntgen rays, and its bearing on the theory of atomic disintegration. The size of the positive ions in flames which do not contain hydrogen	B.A. Cambridge (1907), D.Sc. Edinburgh (1909)	1907, appointed Examiner in Mathematics and Dynamics for Preliminary Examination, and Representative of the University of St. Andrews on the Joint Board of the Universities of Scotland. 1908, Assistant Professor of Physics, and 1910, Head of Physics Department, Heriot-Watt College, Edinburgh. Also appointed, 1910, External Examiner for four years, in subjects of Pure and Applied Mathematics for ordinary and honours degrees in Arts and Science, University of Edinburgh.
228. Miller, John, M.A. <i>Nominated by University of Glasgow</i>	1905-7	University of Göttingen and University of Glasgow	Physics.—On the constant of elasticity of alloys of various metals, with special reference to the inner friction of the same; the effects of temperature and of overstrain on the viscosity of metallic wires	B.Sc. Glasgow	Formerly Mathematical and Science Master at Rose's Academical Institution, Nairn. Now Mathematical Master, Stonehaven Mackie Academy.

220. Johnston, John, B.Sc. . Nominated by University of St. Andrews	1905-7	University of Breslau	Physical Chemistry.—The dissociation pressures of some metallic hydrides and carbonates	D.Sc. St. Andrews (1908)	1907-8, Research Associate of the Research Laboratory of Physical Chemistry, Massachusetts Institute of Technology, Boston, U.S.A. Since 1908 on staff of Geophysical Laboratory, Carnegie Institution of Washington, D.C.; engaged in independent research.
230. Imms, Augustus Daniel, B.Sc. . Nominated by University of Birmingham	1905-7	Morphological Laboratory, University of Cambridge	Zoology.—On the life-histories of the ox warble flies— <i>Hypoderma bovis</i> (de Geer) and <i>H. lineata</i> (Villiers). The structure and biology of the larva and pupa of <i>Anopheles maculipennis</i>	B.A. Cambridge (1907), D.Sc. Birmingham (1907), Fellow of Allahabad University (1909)	Since 1907 Professor of Biology, Muir Central College, University of Allahabad, India.
231. Gwyer, Alfred George Cooper, B.Sc. Nominated by University College, Bristol (now University of Bristol)	1905-7	University of Göttingen	Chemistry.—The study of aluminium alloys	Ph.D. Göttingen	1908-9, engaged in scientific research in Sir William Ramsay's Laboratory, University College, London. Now specialising in Metallurgy. Fellow of the Chemical Society and of the German Chemical Society. Original Member of the Institute of Metals.
232. Zortman, Israel Hyman, B.Sc. . Nominated by University of Leeds	1905-7	University of Leipzig	Chemistry.—The relation between colour and constitution of diketohydrindene derivatives	Ph.D. Leipzig (1907)	1908, Chemist to Harker Fire Extinguisher & Fumigator Co., Ltd., London. 1910, Chemist to Radiant-Heating, Ltd., Carlton Works, Armley, Leeds.
233. Wall, Thomas Frederick, B.Sc., B.Eng. Nominated by University of Liverpool	1905-7	Electrotechnisches Institut, Karlsruhe	Electrical Engineering.—An investigation into the iron losses in asynchronous machines. A new method of separating the iron losses in asynchronous machines. The reluctance of the air-gap dynamo machine. Determination of losses in pole shoes due to armature teeth	M.Sc. Victoria (1906), M.Eng. Liverpool (1908), A.M.I.C.E. (1909), A.M.I.E.E. (1909)	1907-1909, engaged in special technical work with Siemens Bros., Stafford. Also Special External Lecturer to University of Liverpool and Special Lecturer to Birmingham Technical School. 1909-10, Assistant Lecturer and Demonstrator in Electrical Engineering, and 1910, Lecturer on Electrical Engineering, University of Birmingham.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
224. Smith, Winifred, B.Sc. . . Nominated by University College, London	1905-7	Royal College of Science, London	Botany.—On the anatomy, embryogeny, and physiology of the natural order <i>Sapotaceæ</i>	Fellow of the Linnean Society (1908)	1907-9, lecturing in Botany and Nature Studies, and pursuing at Imperial College of Science and Technology her work on the <i>Sapotaceæ</i> and on <i>Funaria elastica</i> , a recently cultivated rubber plant. Still engaged in research.
225. Rimmer, Travis, B.Sc. . . . Nominated by Victoria University of Manchester	1905-7	Meteorological Institute of the University of Vienna and at the Observatories of Sonnenblick and Kew	Meteorology.—Investigations in atmospheric electricity and measurements in solar and terrestrial radiation	M.Sc. Victoria (1907)	1908, Resident Observer in charge of Howard Estate Meteorological Observatory, University of Manchester. 1908-9, Assistant, and 1909, Acting Officer-in-Charge, Government Survey, Fiji.
226. Lebour, Marie Victoire . . . Nominated by Armstrong College, Newcastle-upon-Tyne	1905-8	Armstrong College . . .	Zoology.—Investigation of the mussel beds of Northumberland. Investigation of the trematode fauna of Northumberland with special reference to life-histories	M.Sc. Durham	1908, Junior Demonstrator, and 1910, Assistant Lecturer and Demonstrator in Zoology, Leeds University.
227. Garrett, Charles A. B., B.Sc. . . Nominated by University College, Nottingham	1905-7	Cavendish Laboratory . . .	Physics.—The velocity of gaseous ions under an electric field in air and in mixtures of air and hydrogen	—	Head of Department of Physics, Blackburn Technical Institute.
228. Gallagher, William John, B.A. . Nominated by Queen's College, Cork (now University College, Cork)	1905-6 (Eighteen months)	Königl. Preuss. Forstakademie, Münden, Hanover	Botany.—On the root anatomy of the Meliaceæ and the Cupulifere	M.A. Royal University of Ireland (1906)	1906, resigned Scholarship on being appointed Government Mycologist, Department of Agriculture, Federated Malay States. 1909, Director of Agriculture, Federated Malay States.
229. Clarke, Rosalind, B.A. . . . Nominated by Queen's College, Galway (now University College, Galway)	1905-7	University of Bonn . . .	Chemistry.—The determination of the constitution of the compound produced by the action of ammonia on lactic acid. The discovery of an analogy between the phenyl ester of mesaconic acid and aromatic esters of fumaric acid	—	On expiration of Scholarship continued studies in Chemical and Physical Laboratories, Queen's College, Galway. 1908, Science Mistress, High School for Girls and Rochelle School, Cork.

240. Johnson, F. M. G., B.Sc. . . . <i>Nominated by McGill University, Montreal</i>	1905-8	University College, London; University of Breslau	Chemistry.—Electrode potentials in liquid ammonia. Measurement of dissociation and sublimation pres- sures	M.Sc. McGill (1905), A.I.C. (1906), Ph.D. Breslau (1908), F.I.C. (1909) Ph.D. Leipzig	Lecturer in Chemistry, McGill Univer- sity, Montreal.
241. MacDougall, Frank Henry, M.A. <i>Nominated by Queen's University, Kingston, Ontario</i>	1905-7	University of Leipzig . . .	Chemistry.—On the kinetics of the re- action between chloric and hydro- chloric acids		1907, Instructor of Chemistry, and 1909, Assistant Professor of Chemis- try, Agricultural and Mechanical College of Texas.
242. Laby, Thomas Howell <i>Nominated by University of Sydney</i>	1905-8	Cavendish Laboratory . . .	Physics.—On a relation between the velocity and volume of the ions of certain organic acids and bases. A relation between the velocity and volume of organic ions in aqueous solutions. The total ionisation of various gases by the α -rays of uranium. Gaseous ionisation and pressure. A recalculation of the vapour pressure of mercury. The supersaturation and nuclear con- densation of certain organic vapours	B.A. Cambridge (1907), Awarded Joule Studentship of Royal Society for two years (July 1907)	Awarded the Sudbury Hardyman Prize and a Research Studentship by Emmanuel College of £150 for 1908-9 in consideration of his work on the supersaturation and nuclear condensation of certain organic vapours, undertaken during his tenure of the Commissioners' Scho- larship. 1909, Professor of Physics, Victoria College, Wellington, New Zealand.
243. Kleeman, Richard Daniel, B.Sc. . <i>Nominated by University of Ade- laide</i>	1905-8	Cavendish Laboratory . . .	Physics.—On the recombination of ions made by α , β , γ , and x rays. On the ionisation of various gases by α , β , and γ rays. On the secondary cathode rays emitted by substances when exposed to the γ -rays. On the different kinds of γ -rays and the secondary rays which they produce. On the velocity of the cathode rays ejected from substances exposed to the γ -rays of radium	B.A. Cambridge (1907), D.Sc. Adelaide (1908)	Awarded, 1908, by Emmanuel College, Cambridge, a Science Research Scho- larship, two terms of which were spent at Cambridge, the third under Professor Rutherford at Manchester. Obtained also the Sudbury Hardy- man Prize of Emmanuel College, for a dissertation on ionisation. Awarded, 1909, Mackinnon Student- ship of the Royal Society. Summer and part of first term spent at Leeds University under Professor Bragg; rest of year at Cambridge, time being divided between experimental re- search at Cavendish Laboratory, and theoretical research on the forces of attraction between molecules and the effect they produce. 1910, obtained renewal of Mackinnon Studentship for another year.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
244. Pictou, Norman, B.Sc. <i>Nominated by University College of Wales, Aberystwyth</i>	Bursar (1905-6), Scholar (1906-8)	University College, Aberystwyth, and University of Leipzig	Organic Chemistry.—On the influence of substituents in the trinitrobenzene molecule on the formation of additive compounds with arylamines. The investigation of certain coloured salts of nitro-bodies	Ph.D. Leipzig	1909, Chemical Expert to C. W. Martin & Sons, Furniers, Bernondsey.
245. Swinden, Thomas <i>Nominated by University of Sheffield</i>	Bursar (1905-6), Scholar (1906-8)	Universities of Sheffield, Stockholm, and Upsala	Metallurgy.—The influence of carbon on steels containing a fixed tungsten content (3%). Investigation of mechanical, chemical, microscopical, thermal, magnetic, and electrical properties. Researches on magnetic functions and their mutual relations. On methods of measuring high temperatures	B.Met. Sheffield (1908)	In 1908 joined Mr. Percy Longmuir as Consulting Metallurgist and Analytical Chemist. 1909, Carnegie Scholar. 1910, Appointed Chief Assistant Metallurgist, Messrs. Samuel Fox & Co., Ltd., Stockbridge Works, near Sheffield.
246. Cameron, Alexander Thomas, M.A., B.Sc. <i>Nominated by University of Edinburgh</i>	1906-9	University College, London, and Technische Hochschule, Karlsruhe	Chemistry.—The chemical action of radium emanation. The electromotive forces produced by dilute solutions streaming through capillary tubes.	—	Appointed, December 1909, Lecturer in Physiological Chemistry, University of Manitoba, Winnipeg.
247. Jack, Robert, M.A., B.Sc. <i>Nominated by University of Glasgow</i>	1906-9	Universities of Göttingen and Paris	Physios.—On the Zeeman effect.	Ph.D. Göttingen D.Sc. Glasgow	Appointed, September 1909, Lecturer in Physics, Queen's University of Belfast.
248. Barrow, Fred, M.Sc. <i>Nominated by University of Birmingham</i>	1906-8	University of Strassburg	Chemistry.—The action of alcoholic potash, etc., on <i>p</i> -nitrobenzal chloride, and the condensation of <i>p</i> -nitrobenzyl, and <i>p</i> -nitrobenzal chloride and bromide with aldehydes	Ph.D. Strassburg	Assistant Lecturer and Demonstrator in Chemistry, Birkbeck College, London.
249. Burt, Frank Playfair, B.Sc. <i>Nominated by University College, Bristol (now University of Bristol)</i>	1906-8	University College, Bristol, and University College, London	Chemistry.—The atomic weight of chlorine, based on an experimental determination of the density of hydrogen chloride and on the volumetric analysis of hydrogen chloride	—	Still engaged in Chemical Research in University College, London.

250. Armes, Henry Percy, B.Sc. . <i>Nominated by University of Leeds</i>	1906-8	University of Strassburg . .	Organic Chemistry.—On the constitution of 2-5 diphenyl pentene acids	Ph.D. Strassburg (1909)	Lecturer in Chemistry, University of Manitoba.
251. Barker, Jonathan Tong, B.Sc. . <i>Nominated by University of Liverpool</i>	1906-8	University of Berlin . .	Physical Chemistry.—Investigation of the vapour pressures of toluene, benzene, and naphthalene between 40° C. and -78° C.	Ph.D. Berlin (1908) M.Sc. Liverpool (1910)	1909-10, engaged in research at Muspratt Laboratory of Physical Chemistry, University of Liverpool. Since April, 1910, has been in the employ of Messrs. Brunner, Mond & Co., Ltd.
252. Sheppard, Samuel Edward, B.Sc. <i>Nominated by University College, London</i>	1906-8	Physical Institute of the University of Marburg; Physical Research Laboratory and Physiological Laboratory of the University of Paris	Chemistry. — Investigations on the theory of sensitising photographic plates with dyestuffs. The optical and sensitising properties of the isocyanine dyes. On colloidal dyestuffs	D.Sc. London (1908)	Formerly engaged in research at University College, London, under Sir William Ramsay. Now engaged as Research Chemist with Messrs. Wratten and Wainwright, Photographic Plate Manufacturers, Croydon, Surrey.
253. Kay, Francis William, B.Sc. . <i>Nominated by Victoria University of Manchester</i>	1906-9	Universities of Berlin and Geneva	Chemistry.—Polypeptides from β -amido acids and other researches in organic chemistry, particularly on the alkaloids	M.Sc. Victoria Ph.D. Berlin	Demonstrator, School of Chemistry, University of Geneva.
254. Wood, George Curry, B.Sc. . . <i>Nominated by Armstrong College, Newcastle-upon-Tyne</i>	1906-8	Eidgen. Polytechnische Schule, Zürich	Physics.—The electro-motive force of concentration cells	M.Sc. Durham (1908)	Studied for diploma in theory and practice of teaching, Armstrong College, Newcastle-upon-Tyne. Now Science Master in Technical Institute, Consett, Co. Durham. Lecturer on Physics in Technical Department.
255. Tomlinson, George Arthur, B.Sc. <i>Nominated by University College, Nottingham</i>	1906-8	Engineering Laboratory, University of Cambridge	Engineering.—On the rate of combustion of explosive mixtures of coal gas and air. On the specific heat of metals at high temperatures	—	1908-10, Demonstrator, Engineering Laboratories, Cambridge. 1910, Experimentalist for Messrs. Kelvin and James White, Glasgow.
256. Davies, John Hughes, B.Sc. . . <i>Nominated by University College of South Wales and Monmouthshire, Cardiff</i>	1906-8	University of Leipzig . .	Physical Chemistry.—The decomposition and synthesis of ammonia under the influence of the silent discharge	Ph.D. Leipzig (1908)	1908, University Assistant at the Physikalisch-Chemisches Institut, University of Leipzig. 1909-10, Lecturer in Chemistry and Physics at the Training College, Carmarthen. 1910, Vice-Principal of St. Peter's Training College for Teachers, Peterborough.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
257. Hedley Edgar Percy <i>Nominated by Royal College of Science for Ireland</i>	1906-9	University of Leipzig and Federal Polytechnic, Zürich	Chemistry.—On polynitro-bodies and polynitro-compounds. The study of the alkaloids	Ph.D. Leipzig	Lecturer and Demonstrator in Chemistry, University of Birmingham. At present engaged in translating "New Ideas on Inorganic Chemistry" from the German work of Professor A. Werner.
258. McKee, James Lyttle <i>Nominated by Queen's College, Belfast (now Queen's University of Belfast)</i>	1906-8	University of Freiburg, Breisgau	Chemistry.—The action of sulphuretted hydrogen on hydro-aromatic and certain aliphatic ketones	Ph.D. Freiburg	Until January, 1910, Science Master, Market Bosworth Grammar School. Since that date, Demonstrator in Chemistry, University College, Cork.
259. Clark, Robert Harvey, B.A. <i>Nominated by University of Toronto</i>	1906-9	University of Leipzig	Chemistry.—The relation between the colour fluorescence of organic compounds and their constitution	Ph.D. Leipzig	Assistant Professor of Chemistry, Clark College, and Lecturer in Chemistry, Clark University, Worcester, Massachusetts.
260. MacKay, George Moir Johnstone, B.A. <i>Nominated by Dalhousie University, Halifax</i>	1906-8	Massachusetts Institute of Technology	Chemical Physics.—Equilibria in aqueous solutions containing copper and iodine. Transference measurements in aqueous solutions containing the chloride and sulphate of potassium	M.Sc. Massachusetts (1908)	1908, Instructor in Chemistry, University of Dalhousie. 1909, Chemist to Sydney Cement Company, Sydney, Nova Scotia. 1910, Chemist to Colloseus Cement Co., Buffalo, N.Y.
261. Baldwin, James Mason, M.A., B.Sc. <i>Nominated by University of Melbourne</i>	1906-8	Royal Observatory, Cape Town, and Astrophysical Observatory, Potsdam	Astrophysics.—The orbit of the α -Centauri; and the parallax determined spectro-graphically. Photometric observations of planets and variable stars	—	1908, appointed Chief Assistant in the Melbourne Observatory.
262. Denham, Henry George, M.A., M.Sc. <i>Nominated by University of New Zealand</i>	1906-9	Universities of Liverpool and Heidelberg	Physical Chemistry.—The hydrolysis of heavy metal salts and research in other branches of physical chemistry.	D.Sc. Liverpool Ph.D. Heidelberg	At present engaged in research work at Canterbury College, Christchurch, New Zealand.
263. Millar, William Somerville, M.A., B.Sc. <i>Nominated by University of Edinburgh</i>	1907-9	University of Heidelberg and University College, London	Physical Chemistry.—The anticatalytic effect of water in the chemical kinetics of diazoacetic ester. Molecular volumes of rare gases	Ph.D. Heidelberg	Engaged in commercial research on the treatment of wolfram, tungstic acid, and tungsten metal.

264. Thomson, David, M.A., B.Sc. <i>Nominated by University of Glasgow</i>	1907-9	University of Göttingen	Organic Chemistry.—On the relation of optical activity to chemical constitution	Ph.D. Göttingen	Demonstrator in Senior Chemistry Department, University of Glasgow.
265. Weir, John, M.A., B.Sc. <i>Nominated by University of St. Andrews</i>	1907-1910	Universities of Würzburg and Cambridge	Organic Chemistry.—Some derivatives of benzoyl-aspartic acid. Camphoric acid derivatives	Ph.D. Würzburg	Elected Carnegie Fellow, 1910.
266. Watson, Ernest Ansley, B.Sc. <i>Nominated by University of Birmingham</i>	1907-9	University of Liverpool	Engineering.—Investigation of the electric strength of compressed air, etc. Losses of transmission lines due to brush discharge	M.Sc. Birmingham	In charge of the technical work of Morris & Lister, Limited, Electrical Engineers, Coventry.
267. Usher, Francis Lawry, B.Sc. <i>Nominated by University of Bristol</i>	1907-9	University of Prague and University College, London	Physical Chemistry.—On the combination of nitric oxide with iron salts. On the influence of non-electrolytes on the solubility of gases in water. On the action of radium emanation on ammonia and on mixtures of nitrogen and hydrogen, etc. On the action of radium emanation on elements of the carbon group	—	July 1910, appointed to Chair of Chemistry in the Central College, Bangalore, India. Still engaged in research work.
268. Hodsman, Henry James, B.Sc. <i>Nominated by University of Leeds</i>	1907-1910	Technical High School, Karlsruhe, and M. Le Chatelier's Laboratory, Sorbonne, Paris	Physical Chemistry.—Study of combustion and chemistry of high temperatures	—	Engaged in technical research work for the British Cyanide Company, Oldbury.
269. Dakin, William John, M.Sc. <i>Nominated by University of Liverpool</i>	1907-9	University of Kiel, Biological Station at Helgoland, Naples, Port Erin and Liverpool	Marine Biology.—Osmotic pressure of the blood of fishes. On the economic mollusc Pecten (the scallop). The question of the food of Copepoda. Methods of Plankton research. Filtration co-efficients of Plankton nets. The eye of Pecten	D.Sc. Liverpool	1909, Demonstrator and Assistant Lecturer in Zoology, Queen's University, Belfast. 1910, Demonstrator and Assistant Lecturer on Zoology, University of Liverpool.

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270. Metcalfe, Edward Parr, B.Sc. Nominated by University College, London	1907-8	Cavendish Laboratory, Cambridge	Physics.—Ionisation in various gases	—	Resigned Scholarship at end of first year on being appointed Professor of Physics at Central College, Bangalore, Mysore, India.
271. Robinson, Robert, B.Sc. Nominated by Victoria University of Manchester	1907-9	Victoria University of Manchester and Federal Polytechnic, Zürich	Organic Chemistry.—On the constitution of terbin and haematoxylins. On the constitution of brazilin and haematoxylins and the synthesis of opium alkaloids	D.Sc. Victoria	Junior Demonstrator in Organic Chemistry, Victoria University of Manchester.
272. Robison, Robert, A.I.C., B.Sc., London Nominated by University College, Nottingham	1907-9	University of Leipzig.	Organic Chemistry.—An investigation of isomerism amongst esters and salts of dimethylviolic acid and allied substances, with special reference to the relationship between colour and constitution	Ph.D. Leipzig F.I.C. (1908)	Assistant Lecturer in Chemistry, University College, Galway.
273. Everatt, Reginald William, B.Sc. Nominated by University College of North Wales, Bangor	1907-8	St. John's College, Cambridge	Chemistry.—Interaction of diazonium salts with phenols. Stereoisomerism of nitrogen	M.Sc. Wales	Resigned Scholarship in June 1908, on being appointed Assistant Master, County School, Pwllheli.
274. Austin, Percy Corlett, M.A. Cambridge Nominated by Queen's College, Galway (now University College, Galway).	1907-9	University College, London, and University of Paris	Organic Chemistry.—Synthesis of acridine derivatives. The condensation of phenanthrenequinone with dimethylaniline in the presence of aluminium chloride	—	Lecturer in Chemistry, University College, Reading.
275. Simpson, James Crawford Nominated by McGill University, Montreal	1907-9	University of Cambridge and Biological Laboratory, Plymouth	Embryology.—A study of the development of Cucumaria	—	1909, Acting Professor of Zoology; 1910, Associate Professor of Histology and Embryology, McGill University, Montreal.
276. Laidlaw, Campbell, B.A., M.D., C.M. Nominated by Queen's University, Kingston, Ontario	1907-9	St. Mary's Hospital, London, and the University of Tübingen, Germany	Theoretical Pathology.—A study of osponic methods	Member of College of Physicians and Surgeons, Ontario	Appointed July, 1909, Director of the Inoculation Department and Pathologist, St. Michael's General Hospital, Ottawa, Canada.

277. Taylor, Thomas Griffith, B.Sc., B.E. <i>Nominated by University of Sydney</i>	1907-1910	University of Cambridge . . .	Palaeontology.—Morphology and affinities of the lower Cambrian organisms archeocyathinae. The economic aspect of Australian physiography. The evolution of the corals. The study of Alpine morphology	—	Geologist to the British Antarctic Expedition, 1910.
278. Stephens, Edith Layard, B.A. . <i>Nominated by South African College, Cape Town</i>	1907-1910	University of Cambridge . . .	Botany.—A morphological, systematic, and anatomical study of the Penaeaceae and Geissolomaceae. Apogamy in <i>Pteris Droogmantiana</i> . Apogamy in <i>Mercurialis annua</i> . Development of the seed-coat of <i>Carica papaya</i> . Examination of the embryo-sacs of various Angiosperms. The anatomy of <i>Gnetum Africanum</i>	—	Research Assistant to Professor of Botany, South African College, Capetown.
279. Trobridge, Frederick George, B.Sc. <i>Nominated by Armstrong College, Newcastle-upon-Tyne</i>	(Bursar) 1907-8 (Scholar) 1908-1910	University of Bonn . . .	Organic Chemistry.—The constitution of itaconamide	Ph.D. Bonn.	Demonstrator in Chemistry, Armstrong College, Newcastle-upon-Tyne.
280. Glauert, Edward Colver, . <i>Nominated by University of Sheffield</i>	(Bursar) 1907-8 (Scholar) 1908-1910	University of Sheffield and Royal Technical High School, Charlottenburg	Engineering.—Comparison of static and dynamic testing. Structure of cast-iron water pipes. Ignition systems for internal combustion engines. Effect of nitrogen on iron and steel. Sulphurous acid as a metallographic etching medium. The magnetic properties of nickel steels. The production of artificial meteoric iron	A.I.A.E.	Private research work at Charlottenburg
281. Wallace, Robert Charles, M.A., B.Sc. <i>Nominated by University of Edinburgh</i>	1908-1911	University of Göttingen and University College, Dundee	Physical Chemistry.—The two-component systems of various metal-silicates. The dimorphism of the ammonium haloids. A crystallographical study of the thallic double salts	Ph.D. Göttingen	<i>Scholarship has been exceptionally renewed for a third year.</i>
282. McMillan, Andrew, M.A., B.Sc., <i>Nominated by University of Glasgow</i>	1908-1910	University of Jena . . .	Chemistry.—Constitution of gnoscopine, normaceine, and methylhydrastene. Transformations and reactions of narcotine and hydrastine effected by various reagents	—	Engaged in private research at University of Glasgow.

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Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
283. Stoward, Frederick, M.Sc. . . . <i>Nominated by University of Birmingham</i>	1908-1910	University of Birmingham and Pasteur Institute, Paris	Biological Chemistry.—The physiology of the germination of barley. The cytology of the enzyme secreting cells of barley. The influence of certain acids on the activity of sucrose	—	Appointed December, 1910, Botanist and Plant Pathologist to the Department of Agriculture, Perth, Western Australia.
284. Irving, Annie Atkinson, B.Sc. . . <i>Nominated by University of Bristol</i>	1908-1911	University of Cambridge . . .	Botanical Physiology.—Relation between the greening and assimilatory power of young seedlings. Stimulatory and toxic effects of anaesthetics on respiration	—	<i>Scholarship has been exceptionally renewed for a third year.</i>
285. Cross, William Ernest, B.Sc. . . <i>Nominated by University of Leeds</i>	1908-1910	University of Göttingen . . .	Fermentation and sugar-chemistry.—The occurrence of acetyl and formyl groups in lignin. Fermentation experiments with the pentoses	Ph.D. Göttingen	Appointed, July 1910, Research Chemist in the Sugar Laboratory of the Louisiana University, New Orleans.
286. Hughes, Arthur Llewelyn, B.Sc. <i>Nominated by University of Liverpool</i>	1908-1910	University of Cambridge . . .	Physics.—Ionisation in gases by ultra-violet light. The ultra-violet light from the mercury arc	B.A. Cambridge (1910)	On the expiration of his Scholarship in 1910, awarded a Research Scholarship by Emmanuel College, Cambridge.
287. Hilditch, Thomas Percy, B.Sc., A.I.C. <i>Nominated by University of London</i>	1908-1910	University College, London, and Universities of Jena and Geneva	Organic and Physical Chemistry.—The relation between chemical constitution and optical activity	—	<i>Scholarship has been exceptionally renewed for a third year.</i>
288. Royds, Thomas, M.Sc. . . . <i>Nominated by Victoria University of Manchester</i>	1908-1911	Victoria University of Manchester and Universities of Tübingen and Berlin	Radio-activity and Spectroscopy.—The spectrum of the radium emanation. The grating spectrum of the radium emanation. A comparison of the radium spectra obtained by different observers. The nature of the α -particle. The action of the radium emanation on water. Further experiments on the constitution of the electric spark. The Doppler effect in positive rays in hydrogen. Zeeman effect in certain series consisting of single lines. The reflective power of lamp and platinum black	—	Resigned Scholarship in December, 1910, on being appointed Assistant Director of the Kodaikanal Solar Physics Observatory, India.

289. Luff, Bernard Dunstan Wilkin- son, A.I.C. <i>Nominated by</i> University College, Nottingham	1908-1910	University College, Nottingham, and Victoria University of Manchester	Chemistry.—Organic derivatives of silicon. Preparation of asymmetric phosphorus compounds. M-hemi- picinic and asaronic acids. Experi- ments on the synthesis of the ter- penes	—	1910, appointed Chemist to the North British Rubber Company, Edin- burgh.
290. Southern, Leonard, B.Sc. . . . <i>Nominated by</i> University of Shef- field	1908-1911	University of Cambridge . . .	Experimental Physics.—Investigation as to dependence of gravity on electrification. Determination of the ratio of mass to weight for a radio-active substance	B.A. Cambridge	<i>Scholarship has been exceptionally re- newed for a third year.</i>
291. Thomas, John, B.Sc. . . . <i>Nominated by</i> University College of Wales, Aberystwyth	1908-1911	University of Cambridge and National Physical Laboratory	Chemistry.—The isolation of the aro- matic sulphuric acids. Resolution of tetrahydromethylquinoline	B.A. Cambridge	<i>Scholarship has been exceptionally re- newed for a third year.</i>
292. Leonard, Alfred Godfrey Gordon, A.R.C.Sc.I. <i>Nominated by</i> Royal College of Science for Ireland	1908-1910	University of Bonn . . .	Organic Chemistry.—The constitution and absorption spectra of tartrazin and related compounds	B.Sc. London Ph.D. Bonn	1910, appointed Assistant to Professor of Chemistry, University College, Galway.
293. Beatty, Richard T., M.A., B.E. <i>Nominated by</i> Queen's College, Belfast (now University of Belfast)	1908-1910	Universities of Cambridge and Leeds	Physics.—The behaviour of electrons emitted by metals under the in- fluence of cathode rays and Röntgen rays	B.A. Cambridge	<i>Scholarship recently expired.</i>
294. Wright, Charles Seymour, B.Sc. <i>Nominated by</i> University of Toronto	1908-1910	University of Cambridge . . .	Physics.—Natural ionisation in metal- lic receivers. The number of α -par- ticles emitted by ordinary metals. The crystalline structure of ice in regard to its age and previous history (work undertaken in preparation for the British Antarctic Expedition, 1910)	—	Physicist to the British Antarctic Ex- pedition, 1910.
295. Creighton, Henry Jermain Maude, M.A. <i>Nominated by</i> Dalhousie Univer- sity, Halifax, Nova Scotia	1908-1910	Universities of Birmingham and Heidelberg, and Federal Polytechnic, Zürich	Chemistry.—Solid solution. The con- tamination of precipitated barium sulphate by aluminium salts. In- fluence of colloids on the solubility of gases in water. The solubility of various gases in blood. On optical activation by means of catalysts	M.Sc. Birmingham (1909)	Continuing research work at Zürich.

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
296. Finlayson, Alexander Monerietf, M.Sc. <i>Nominated by University of New Zealand</i>	1908-1910	Imperial College of Science and Technology and at Rio Tinto, Spain, for 3 months	Economic Geology. — New Zealand 'nephrite' and its matrix. Ore shoots on the Hauraki Goldfields, New Zealand. The ore deposits of the British Isles. The copper deposits of Huelva, Spain	D.Sc. London, F.G.S. Assoc. I.M.M.	'Daniel Pigeon' prizeman, Geological Society of London. September, 1910, appointed petroleum geologist on the Burma oil-fields.
297. Irving, Aubrey Gordon, B.A. <i>Nominated by South African College, Cape Town</i>	1908-1910	University of Cambridge	Engineering.—Resistance of cement mortar to repeated loads. Experiments to try and discover whether cement mortar yields by shear or stretch	B.A. Cambridge	<i>Scholarship recently expired.</i>
298. Jameson, Harold, B.Sc. <i>Nominated by Armstrong College, Newcastle-upon-Tyne</i>	(Bursar) 1908-9 (Not awarded Scholarship in 1909)	Armstrong College	Physics.—On the relation between the composition of certain alloys and the potential acquired by them under the influence of Röntgen rays	—	—
299. Watson, William, M.A., B.Sc. <i>Nominated by University of Edinburgh</i>	Appointed 1909	University of Leipzig	Physics.—The physical properties of water at high temperatures and pressures	—	<i>Scholarship renewed for second year, but resigned in July, 1910.</i>
300. Russell, Alexander Smith, M.A., B.Sc. <i>Nominated by University of Glasgow</i>	Appointed 1909	Universities of Glasgow and Berlin	Radio-activity.—The γ -rays of the radio-elements. The chemistry of the uranium-radium series of radioactive elements	—	<i>Scholarship has been renewed for second year.</i>
301. Blackadder, Thomas, B.Sc. <i>Nominated by University of St. Andrews</i>	Appointed 1909	University of Heidelberg and Federal Polytechnic, Zürich	Physical Chemistry.—The catalytic decomposition of formic acid	—	<i>Scholarship has been renewed for second year.</i>
302. Todd, George William, M.Sc. <i>Nominated by University of Birmingham</i>	Appointed 1909	University of Cambridge	Physics.—Phenomena connected with the passage of electricity through gases. Positive ions at low pressures	—	<i>Scholarship has been renewed for second year.</i>
303. Leslie, May Sybil, B.Sc. <i>Nominated by University of Leeds</i>	Appointed 1909	University of Paris	Chemistry.—A detailed study of the mineral thorite and of other minerals of thorium	—	<i>Scholarship has been renewed for second year.</i>

304. Robinson, Frederick William, B.Sc. <i>Nominated by University of Liverpool</i>	Appointed 1909	Technical High School, Karlsruhe	Physical Chemistry.—Investigation of the separated benzene flame	—	<i>Scholarship has been renewed for second year.</i>
305. Watson, Herbert Edmeston, B.Sc., A.I.C. <i>Nominated by University of Lon- don</i>	Appointed 1909	Universities of Berlin, Geneva, and Cambridge	Physical Chemistry.—A complete study of the electrical properties of neon	—	<i>Scholarship has been renewed for second year.</i>
306. Haworth, Walter Norman, M.Sc. <i>Nominated by Victoria Univer- sity of Manchester</i>	Appointed 1909	University of Göttingen and Victoria University of Man- chester	Organic Chemistry.—Research on the synthesis of fenchone, campheni- lone, and other members of the camphor and terpene series	—	<i>Scholarship has been renewed for second year.</i>
307. Greenwood, Harold Cecil, M.Sc. <i>Nominated by Victoria Univer- sity of Manchester</i>	Appointed 1909	Technical High School, Karlsruhe and National Physical Laboratory	Physical Chemistry.—The preparation of ammonia from its elements under the catalytic action of uranium and uranium carbide	—	<i>Scholarship has been renewed for second year.</i>
308. Vernon, Robert Douglas, B.Sc. <i>Nominated by University College, Nottingham</i>	Appointed 1909	University of Cambridge	Geology.—The geology and paleon- tology of the Warwickshire coalfield and of its surrounding red rocks, supposed to be of Permian age	—	<i>Scholarship has been renewed for second year.</i>
309. Vanstone, Ernest, B.Sc. <i>Nominated by University College of South Wales and Mon- mouthshire, Cardiff</i>	Appointed 1909	University College, London	Physical Chemistry.—The specific volumes of the mercury alloys with the alkali metals	—	<i>Scholarship has been renewed for second year.</i>
310. Compton, Arthur, M.A., M.B. <i>Nominated by Queen's College, Galway</i>	Appointed 1909	Pasteur Institute, Paris	Biological Chemistry.—Studies in en- zyme action: cellulase	—	<i>Scholarship has been renewed for second year.</i>
311. Beyle, Robert William, M.Sc. <i>Nominated by McGill University, Montreal</i>	Appointed 1909	Victoria University of Man- chester	Radio-activity.—Experiments on the physical-chemical properties of the emanations	—	<i>Scholarship has been renewed for second year.</i>
312. Bowen, Norman Levi, M.A., B.Sc. <i>Nominated by Queen's University, Kingston, Ontario</i>	Appointed 1909	Massachusetts Institute of Technology, and Geophysical Laboratory Carnegie Institu- tion, Washington	Petrology and Petrographic Geology.— On diabase and granophyre of the Gowganda Lake District, Ontario	—	<i>Scholarship has been renewed for second year.</i>
313. Swain, Herbert John, B.Eng. <i>Nominated by University of Sydney</i>	Appointed 1909	University of Cambridge	Engineering.—Heat flow in the gas engine	—	<i>Scholarship has been renewed for second year.</i>

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
314. Gray, Joseph Alexander, B.Sc. . <i>Nominated by University of Melbourne</i>	Appointed 1909	Victoria University of Manchester	Radio-activity.—Further experiments on the β and γ rays of radium and other radio-active substances	—	<i>Scholarship has been renewed for second year.</i>
315. Glasson, Joseph Leslie, B.Sc. . <i>Nominated by University of Adelaide</i>	Appointed 1909	University of Cambridge . .	Physics.—The specific ionisation of cathode rays of different velocities	—	<i>Scholarship has been renewed for second year.</i>
316. Bowden, Edward, B.Sc. . <i>Nominated by Armstrong College, Newcastle-upon-Tyne</i>	(Bursar) 1909–1910 Appointed (Scholar) 1910	Armstrong College and Technical High School, Karlsruhe	Engineering.—The electric break-down of insulating materials under impulsive pressure rise	—	<i>Scholarship recently awarded.</i>
317. Stanfield, George, B.Eng. . <i>Nominated by University of Sheffield</i>	(Bursar) 1909–1910 (Not awarded Scholarship in 1910)	University of Sheffield . .	Electricity and Magnetism.—Losses and heating effects in alternating current transformers. Ballistic method of magnetic testing	—	—
318. McDavid, James Wallace, B.Sc. . <i>Nominated by University of Edinburgh</i>	Appointed 1910	Victoria University of Manchester	Organic Chemistry.—Synthesis of alkaloids or other natural substances	—	<i>Scholarship recently awarded.</i>
319. Grove, Alfred John, M.Sc. . <i>Nominated by University of Birmingham</i>	Appointed 1910	University of Cambridge . .	Biology.—The biology of injurious insect pests	—	<i>Scholarship recently awarded.</i>
320. Joyner, Reginald Arthur, B.Sc. (London) <i>Nominated by University of Bristol</i>	Appointed 1910	Federal Polytechnic, Zürich . .	Research under Prof. Bredig . . .	—	<i>Scholarship recently awarded.</i>
321. Dudley, Harold Ward, B.Sc. . <i>Nominated by University of Leeds</i>	Appointed 1910	University of Berlin . . .	Organic Chemistry.—The methylation of guanine	—	<i>Scholarship recently awarded.</i>
322. Allmand, Arthur John, M.Sc. . <i>Nominated by University of Liverpool</i>	Appointed 1910	Technical High School, Karlsruhe	Physical Chemistry.—Optical measurement of the temperatures of different flames	—	<i>Scholarship recently awarded.</i>

323. Andrade, Edward Neville da Costa, B.Sc. <i>Nominated by University of London</i>	Appointed 1910	University of Heidelberg .	Physics.—Behaviour of metals under excessive stresses, especially in cases in which flow occurs	—	<i>Scholarship recently awarded.</i>
324. Wilson, William, M.Sc. <i>Nominated by Victoria University of Manchester</i>	Appointed 1910	University of Cambridge .	Radio-activity.—The absorption of homogeneous β -rays by aluminium	—	<i>Scholarship recently awarded.</i>
325. Forster, Aquila, B.Sc. <i>Nominated by Armstrong College, Newcastle-upon-Tyne</i>	Appointed 1910	University of Freiburg .	Chemistry.—The organic derivatives of sulphur	—	<i>Scholarship recently awarded.</i>
326. Challenger, Frederick, B.Sc. (London) <i>Nominated by University College, Nottingham</i>	Appointed 1910	University of Göttingen .	Organic Chemistry.—Derivatives of the thujone series	—	<i>Scholarship recently awarded.</i>
327. Merry, Ernest Wyndham, B.Sc. <i>Nominated by University of Sheffield</i>	Appointed 1910	University of Würzburg .	Organic Chemistry.—The nature of the isomerism of the Schiff bases obtained from homosalicylaldehyde	—	<i>Scholarship recently awarded.</i>
328. Owen, Edwin Augustus, B.Sc. <i>Nominated by University College of North Wales, Bangor</i>	Appointed 1910	University of Cambridge .	Physics.—On secondary x-rays	—	<i>Scholarship recently awarded.</i>
329. Graham, Joseph Ivon, B.Sc. (London) <i>Nominated by Royal College of Science for Ireland</i>	Appointed 1910	University of Cambridge .	Stereo-chemistry.—Examination and measurement of the molecular rotation of sulphonio acid and several salts under different conditions of concentration, etc.	—	<i>Scholarship recently awarded.</i>
330. Crymble, Cecil R., B.A., B.Sc. (R.U.I.) <i>Nominated by Queen's University of Belfast</i>	Appointed 1910	Queen's University of Belfast .	Biological Chemistry.—On absorption spectra, and on the bio-chemistry of <i>ulva latissima</i>	—	<i>Scholarship recently awarded.</i>
331. Thompson, Walter Palmer, B.A. <i>Nominated by University of Toronto</i>	Appointed 1910	Harvard University . . .	Botany.—The structure of wood .	—	<i>Scholarship recently awarded.</i>
332. Wallace, Curtis Clayton, B.Sc. <i>Nominated by University of Dalhousie, Halifax, Nova Scotia</i>	Appointed 1910	Harvard University . . .	Chemistry.—Research in problems relating to quinone, or other problems in organic or analytical chemistry	—	<i>Scholarship recently awarded.</i>

LIST OF SCIENCE RESEARCH SCHOLARS APPOINTED BETWEEN THE YEARS 1891 AND 1910—continued.

Name of Scholar	Years of tenure of Scholarship	Places of study during Scholarship	Branch of Science and Principal subjects of Research during tenure of Scholarship	Degrees and other distinctions obtained since appointment to Scholarship	Particulars of Scholar's subsequent career as far as ascertained
333. Davidson, George Frederick, B.E. <i>Nominated by University of Sydney</i>	Appointed 1910	University of Cambridge . .	Engineering.—An experimental verification of the relation between the theoretical dynamics of air and water	—	<i>Scholarship recently awarded.</i>
334. Masson, James Irvine Orme, M.Sc. <i>Nominated by University of Melbourne</i>	Appointed 1910	University of Edinburgh . .	Chemistry.—The effects of addition of acids to solutions of their salts	—	<i>Scholarship recently awarded.</i>
335. Stubbs, Clifford Morgan, M.A. . <i>Nominated by University of New Zealand</i>	Appointed 1910	University of Liverpool . .	Physical chemistry.—The existence at low temperatures and means of determination (if existent) of transition points between hydrated salts and their less hydrated forms and ice.	—	<i>Scholarship recently awarded.</i>
336. Jacot, Edouard, B.A. . . <i>Nominated by South African College, Cape Town</i>	Appointed 1910	University of Cambridge . .	Physics.—Conduction of electricity through gases	—	<i>Scholarship recently awarded.</i>

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Sheffield, University of (formerly Firth College)	Nos. 11, 26, 60, 108, 177, 193, 245, 280, 290, 317, 327.
Sydney, University of	Nos. 33, 48, 79, 113, 159, 174, 206, 242, 277, 313, 333.
Toronto, University of	Nos. 30, 62, 93, 127, 156, 189, 218, 259, 294, 331.

APPENDIX E.

(See Report, page 13.)

LEASE of the SITE of the ROYAL COLLEGE of MUSIC.

THIS INDENTURE, made the 30th day of December 1891, between the Commissioners for the Exhibition of 1851 (hereinafter called "the Commissioners") of the one part, and the Royal College of Music (hereinafter called "the College") of the other part, WITNESSETH, that in consideration of the Rents and Covenants by the College hereinafter reserved and contained, the Commissioners do hereby demise unto the College ALL that piece or parcel of land, situate on the south side of a new road known or intended to be known as "Prince Consort Road," in the parish of St. Margaret, Westminster, in the County of Middlesex, and abutting north on the said new proposed road, south on a strip of land proposed to be leased to the Imperial Institute, east and west on land proposed to be demised to George Newman, containing on the front and rear thereof 200 feet, and on the east and west sides thereof 200 feet, all which said piece or parcel of land is part of the Estate of the Commissioners known as the Kensington Gore Estate, and is with the abutments thereof more particularly described and delineated in the plan drawn on these Presents and is therein coloured blue and yellow: Together with the right to the free and uninterrupted access of light and air, at all times hereafter during the term hereby demised, over the pieces of land shown by the colour red on the said plan or any part thereof, to all and any buildings which now are or shall hereafter be erected on the lands, hereby demised, or any part thereof: And also together with all easements and appurtenances to the said premises hereby demised, except nevertheless and reserving to the Commissioners, their successors and assigns, full and free right and liberty to obstruct and withhold the light and air (other than the light and air the rights to which are hereinbefore expressly granted) coming to the said piece or parcel of land and any building or buildings erected or to be erected thereon, over and from any other land or hereditaments of the Commissioners, their successors or assigns, and generally to use and deal with all other parts of the said Kensington Gore Estate in like manner in all respects, as if the said premises hereby demised had not been part of such estate, and as if the Commissioners had never any estate or interest therein, it being the meaning and intent of these Presents, that any such withholding or obstruction of light and air and other such user and dealing as aforesaid shall not be deemed to be a derogation from the demise hereby made, and also except and reserved, as aforesaid, access of light and air over the pieces of land shewn by the colour yellow on the said plan free from all buildings and erections thereon, and also except and reserving unto the Commissioners, their successors and assigns, full and free right and liberty to use all sewers and drains coming through or under the said demised premises or from any other land or hereditaments of the Commissioners, their successors or assigns: To hold the said premises unto the College and their successors, from the 24th day of June 1890 for the term of 999 years, yielding and paying therefor the yearly rent of £5, without any deduction (except for Landlords' Property Tax), on every 24th day of June during the said term, the first payment whereof shall be made on the 24th day of June 1891. And the College do for themselves and their successors hereby

covenant with the Commissioners, their successors and assigns, that the College or their successors during the said term will duly pay the said rent hereby reserved on the day and in manner aforesaid, and will also pay all rates, taxes, assessments, impositions and outgoings whatsoever (whether annual or otherwise), now or hereafter chargeable or payable on or in respect of the said premises or on or by either Landlord or Tenant in respect thereof: And will before the expiration of three years from the commencement of the term, at the cost of the College, erect on the said piece or parcel of land hereby demised buildings, suitable for a College building for the purposes of the Charter of the College, of a good and substantial character and with the best materials and workmanship, to the satisfaction in all respects as to Plans, elevation, and otherwise of the Commissioners, their successors or assigns. And will during the said term, to the like satisfaction, maintain such College building in complete working order and keep such building or buildings or any building or buildings, which may from time to time be substituted therefor, and all fixtures and fittings in and upon the same, in good and substantial repair and condition, and will at the expiration, or sooner determination of the said term, deliver up to the Commissioners, their successors or assigns, the said piece or parcel of land hereby demised with the building or buildings then erected thereon, and all fixtures and fittings in and upon the same, in like good and substantial repair and condition: And that the College or their successors shall not at any time make any alteration whatever in the elevation or the architectural decorations of the said buildings and premises hereby demised or any future erections to be built on the said premises or any part thereof without the consent in writing of the Commissioners, their successors or assigns, and shall not nor will erect or set up any additional erections or buildings in or upon any part of the said premises without the previous written consent of the Commissioners, their successors or assigns: And shall not nor will at any time cut or injure any of the principal timbers or walls of the buildings, from time to time standing or being upon the said premises: And that the College and their successors during the said term will keep the building or buildings for the time being erected upon the piece or parcel of land insured against loss or damage by fire in the joint names of the College and their successors, and the Commissioners, their successors and assigns, in the full value thereof, in the Alliance Fire Insurance Office, or some other Office in London or Westminster, to be from time to time named by the Commissioners, their successors or assigns. And will from time to time, on demand, produce to the Commissioners, their successors or assigns, or their Secretary or agent for the time being, the receipt or receipts for the current year's Premium or Premiums, payable in respect of the Policy or Policies of every or any such Insurance, and in case any such building as aforesaid shall suffer any loss or damage by fire, then and so often as the same shall happen, the College or their successors will, by means of any moneys which shall be received by them under any such Insurance as aforesaid, and (if necessary) at their own further expense, well and properly to the satisfaction in all respects of the Commissioners, their successors or assigns, rebuild, repair, or re-instate the premises which shall have suffered such loss or damage, and that during the said term the College will use the said premises and every part thereof for the purposes of the Royal Charter, by which the College are incorporated, and of any Charter or Charters hereafter granted by way of Supplement thereto or in substitution therefor, and for no other purpose whatever: And will not assign, underlet, or part with the possession of the said premises or any part thereof to any Corporation or person whatever: And that

the two pieces of land, shewn by the colour yellow on the said plan, being portions of the premises hereby demised, shall at all times hereafter be kept by the College and their successors open and unbuilt upon, and that no erection or thing shall at any time be placed thereon, which may in any degree obstruct or interfere with the access of air or light to any buildings, which shall at any time be on the pieces of land shewn by the colours brown and purple on the said plan, or either of them. And the Commissioners for themselves, their successors and assigns, do hereby covenant with the College and their successors, that they will, within two years from the date hereof, form or cause to be formed the road, intended to be called the Prince Consort's Road, with all sewers, pavings, curb and channels: And the College do hereby, for themselves and their successors, covenant with the Commissioners, their successors and assigns, that they, the College or their successors, will repay to the Commissioners one half the cost of making the road, sewers, pavings, curb and channels in respect of their frontage of 200 feet thereto, that is to say, the whole cost to the centre of the road, and will also pay their proportion of the cost of maintenance of the said road, until the same be taken to by the Parish: And the Commissioners do hereby further covenant with the College, that they will at their own expense within three years from the date hereof lay out as gardens, courts and terraces the plot of land, situate on the northern side of the premises, hereby demised, which Plot is coloured green on the said plan, and in which the Memorial of the Exhibition of 1851 is intended to be placed, and will from time to time and at all times during the said term keep such gardens, courts and terraces planted, turfed, cleaned and generally kept in good, decorative and substantial repair and condition: And the College do hereby for themselves and their successors, covenant with the Commissioners, their successors and assigns, that the College or their successors will from time to time and at all times during the said term pay to the Commissioners a fair proportion of the expense incurred by them in keeping such gardens, courts, and terraces planted, turfed, cleaned, and keeping in good, decorative and substantial repair and condition as aforesaid, such proportion to be settled by the Surveyor for the time being to the Commissioners, their successors or assigns: PROVIDED ALWAYS, that if at any time during the said term any payment in respect of the said rent, hereby reserved, shall be in arrear for twenty-one days after the same shall have become due, or there shall be a breach, non-performance, or non-observance of any of the covenants on the part of the College hereinbefore contained, then and whenever the same shall happen, it shall be lawful for the Commissioners, their successors or assigns, to enter upon the said premises or any part thereof in the name of the whole, and to determine the demise hereby made and the said term hereby granted, and such demise and term shall thereupon determine, but without prejudice to any rights of action or other remedy which the Commissioners, their successors or assigns, may for the time being have against the College in respect of any such arrears of rent, or breach, non-performance, or non-observance of covenant as aforesaid: And the Commissioners do hereby covenant with the College that, notwithstanding anything by the Commissioners done or knowingly suffered, the College paying the said rent and performing and observing the covenants by the College hereinbefore contained, may quietly possess and enjoy the said premises and every part thereof during the said term without interruption or disturbance by the Commissioners or any Corporation or person lawfully claiming through, under, or in trust for them. IN WITNESS &c.

APPENDIX F.

(See Report, page 14.)

LEASE of the SITE (and BUILDING) of the ROYAL COLLEGE OF ORGANISTS.

THIS INDENTURE, made the 22nd day of October, 1903, between the Commissioners for the Exhibition of 1851 (hereinafter called "the Commissioners") of the one part, and the Royal College of Organists (hereinafter called "the College") of the other part: WHEREAS the Commissioners have agreed that the College shall be given the use of the premises hereinafter described, so long as they require them for the purposes of their Charter and use them for such purposes, and subject to the terms of these presents: NOW THESE PRESENTS WITNESS, that in pursuance of such agreement and in consideration of the rent hereby reserved and the covenants hereinafter contained:

1. The Commissioners do hereby demise unto the College ALL that piece of land situate on the west side of the Royal Albert Hall in the Parish of St. Margaret's, Westminster, in the County of Middlesex, together with the buildings thereon erected, formerly occupied by the National Training School of Music, and late in the occupation of the Royal College of Music, which said premises are more particularly delineated and described in the map or plan thereof drawn on these presents and thereon coloured pink, To Hold the said premises for the term of ninety-nine years from the 24th day of June 1903, if the College shall so long require them for the purposes of their Charter and use them for such purposes, yielding and paying therefor yearly the rent of 1*l.* without any deductions (except the Landlord's Property Tax) on every 24th day of June during the said term, the first payment to be made on the 24th day of June 1904.

2. The College do hereby covenant with the Commissioners, that the College will, during the said term, pay the said rent hereby reserved on the day and in the manner aforesaid, and will also pay all rates, taxes, assessments, impositions and outgoings whatsoever (whether annual or otherwise), now or hereafter chargeable or payable on or in respect of the said premises or on or by either landlord or tenant in respect thereof.

3. The College will, at their own expense, keep the said premises and all fixtures and fittings therein in good and substantial repair and condition to the satisfaction of the Commissioners, their successors or assigns, and it shall be lawful for the Commissioners, their successors or assigns, or their surveyor or other officer for the time being, from time to time at all reasonable hours (after giving the College not less than twenty-four hours' notice in writing of their or his intention so to do) to enter into and upon the said premises and view the state thereof.

4. The College will at their own expense forthwith, after receiving a requisition in writing to that effect from the Commissioners, their successors or assigns, or their surveyor or other officer for the time being, make good any defects or wants of reparation which may subsist in the said premises contrary to the preceding clause of these presents, and will, on the determination of the lease hereby granted, deliver up the said premises with the fixtures and fittings thereon to the Commissioners, their successors or assigns, in such good and substantial repair as aforesaid.

5. The College shall use the said buildings or tenements as aforesaid for the purposes of the College as defined by their said Charter and for no other purposes whatsoever.

6. The College will not at any time make any alteration in the elevation or architectural decoration of the said buildings and premises hereby demised, or any future erections to be built on the said premises or any part thereof, without the consent in writing of the Commissioners, and shall not nor will erect or set up any additional erections or buildings in or upon any part of the said premises without the previous written consent of the Commissioners, and shall not nor will at any time cut or injure any of the principal timber or walls of the buildings from time to time standing and being upon the said premises, and will not assign, underlet or in any way part with the possession of the said premises.

7. The College will, at their own expense, insure and keep insured the said building hereby demised against loss or damage by fire in the joint names of the College and their successors and of the Commissioners, their successors and assigns, in the sum of 7,000*l*. at the least, in The Alliance Insurance Office or some other fire insurance office in London or Westminster to be from time to time named by the Commissioners, their successors and assigns, and will, within seven days after every premium payable in respect of such insurance shall become due, deliver if demanded to the Commissioners, their successors or assigns, the receipt for such premium, and in case any building as aforesaid shall suffer any loss or damage by fire, then and as often as the same shall happen, the College will by means of moneys which shall be received by them under such insurance as aforesaid, and, if necessary at their own further expense, well and properly, to the satisfaction in all respects of the Commissioners, their successors and assigns, repair and reinstate the said premises which shall have suffered such loss and damage: PROVIDED ALWAYS that if at any time during the said term the College shall cease to require the said premises for the purposes of their Charter or shall cease to use them for such purpose, or if any payment in respect of the said rent hereby reserved shall be in arrear for twenty-one days after the same shall have become due or there shall be any breach, non-performance or non-observance of any of the covenants on the part of the College hereinbefore contained, and in particular if the said premises shall be used for any purpose other than the purpose of the said Charter, then, whenever the same shall happen, it shall be lawful for the Commissioners, their successors or assigns, to enter upon the said premises or any part thereof in the name of the whole, and to determine the demise hereby made and the said term hereby granted, and such demise and term shall thereupon determine, but without prejudice to any right of action or other remedy which the Commissioners, their successors or assigns, may for the time being have against the College in respect of any such arrears of rent, or breach, non-performance or non-observance of covenant as aforesaid.

8. And the Commissioners do hereby covenant with the College that notwithstanding anything by the Commissioners done or knowingly suffered, the College paying the said rent, and performing and observing the covenants by the College hereinbefore contained, may quietly possess and enjoy the said premises and every part thereof during the said term without interruption or disturbance by the Commissioners, or any Corporation or person lawfully claiming through, under or in trust for them. IN WITNESS, &c.

APPENDIX G.

(See Report, page 14.)

LEASE of the SITE of the ALEXANDRA HOUSE.

THIS INDENTURE, made the Twenty-fifth day of December One thousand eight hundred and ninety-four, between the Commissioners for the Exhibition of 1851 (hereinafter called "the Commissioners") of the one part, and the Alexandra House Association, a Company registered under the Companies Acts, 1862 to 1890, and limited by guarantee (hereinafter called "the Association"), of the other part: WHEREAS Sir Francis Cook, of Doughty House, Richmond, in the County of Surrey, Baronet, of his private munificence, in the year One thousand eight hundred and eighty-three, devoted the sum of thirty thousand pounds for the purpose of providing homes for female students attending the various courses of instruction at South Kensington, on the undertaking of the Commissioners to appropriate, in recognition of the munificence of Sir Francis Cook, a site for building such a home, but subject to such conditions as appear in this Indenture: AND WHEREAS the Commissioners in pursuance of such undertaking have appropriated on their estate at South Kensington the land coloured pink on the plan annexed to these presents as a site for such a home, and the building, called Alexandra House, has, out of the said sum of thirty thousand pounds, and out of other money given with further munificence by the said Sir Francis Cook for the purpose, been erected upon that land, and suitably furnished for the purpose of such a home. AND WHEREAS the objects of the Association are declared by the Memorandum of Association to be, amongst other things, "to accept from the Commissioners for the Exhibition of 1851, a lease of Alexandra House, South Kensington, in the County of London, for the term of Nine hundred and ninety-nine years, and containing such covenants and conditions as the Commissioners think "fit," and to use Alexandra House—

- (i) As a home for female students who are attending a course of instruction at the Royal College of Music or the Science and Art Department's Classes, or at any other appropriate institution on the estate of the Commissioners at South Kensington, to be approved for the purpose jointly by the Commissioners and by the Council of the Association.
- (ii) As a home for female students who, having recently attended such course of instruction as aforesaid, are still continuing their education in science or art in the neighbourhood; and
- (iii) If at any time the whole Alexandra House is not required for the accommodation of such students as aforesaid as a home for any other female students in science or art.

AND WHEREAS the Commissioners have agreed to grant to the Association such a lease, as in this Indenture appears: NOW THIS INDENTURE WITNESSETH, that in consideration of the said agreement, and of the rent and covenants on the part of the Association hereinafter reserved and contained, the Commissioners hereby demise to the Association all that piece of land, situate on the estate of the Commissioners,

at South Kensington, in the parish of Kensington in the County of London, together with the buildings erected on that land or part thereof (now known as Alexandra House), which premises are more particularly delineated on the plan annexed to these presents, and are thereon coloured pink, to hold the premises hereby demised unto the Association from the date of these presents for the term of nine hundred and ninety-nine years, at the yearly rent of five pounds, subject nevertheless to the covenants and conditions herein contained—that is to say :—

The Association doth hereby covenant with the Commissioners, their successors and assigns as follows :—

1. The Association will from time to time and at all times during the said term, pay and discharge all land tax, tithe rent charge, and all rates, taxes, charges, assessments and outgoings whatsoever, whether parliamentary, parochial, local or of any other description, which are now or may at any time hereafter be assessed, charged or imposed upon the premises hereby demised, or on the owner or occupier in respect thereof, landlord's property or income tax only excepted.
2. The Association will, during the said term, keep the premises hereby demised, and all additions erected on or made to the said premises, in good and tenantable repair and condition, externally and internally.
3. The Association will maintain and repair, to the satisfaction of the surveyor of the Commissioners, the road coloured blue on the plan annexed to these presents, until the road is taken over by a public authority.
4. The Association will, at the determination of their tenancy, quietly yield up the premises hereby demised, together with all additions and improvements made thereto in the meantime, and all fixtures, which now are or at any time during the tenancy shall be thereon, in a good and tenantable state of repair and condition.
5. The Association will permit the Commissioners or their agents at any time to enter upon the said premises, and examine the state of repair and condition thereof, and will repair and make good all defects of which notice in writing shall be given by the Commissioners, within three months after the notice is given.
6. If the Association shall at any time make default in the performance of any of the covenants hereinbefore contained for or relating to the repair of the said premises, the Commissioners may (but without prejudice to the right of re-entry under the power hereinafter contained) enter upon the said premises and repair the same at the expense of the Association, in accordance with the covenants and provisions of these presents, and recover the expenses of such repairs (in case the same shall not be repaid by the Association within one calendar month after notice in that behalf given to the Association or left for the Association on the said demised premises) by distress or otherwise, as if the same had been rent in arrear reserved by these presents.
7. The Association will, during the said term, keep the said Alexandra House, and any buildings, erections and fixtures of an insurable nature, which may be placed on the land hereby demised, at any time during the said term, insured to the full value thereof, as determined by the surveyor of the Commissioners for the time being, in some insurance office of repute to be approved in writing by the Commissioners, and will when required produce to the Commissioners the policy and receipt for the last premium in respect of such insurance, and if the Alexandra House or the buildings, erections and fixtures aforesaid are destroyed or damaged by fire the moneys received in respect of the insurance shall be laid out in rebuilding or

reinstating the same, and in case these moneys are not sufficient for the purpose, the deficiency shall be made good by the Association.

8. The Association will not at any time, during the said term, without the licence in writing of the Commissioners first obtained, erect any new buildings on the land hereby demised, or make any structural alteration or addition in or to the said Alexandra House or any buildings which may be erected during the said term upon the land hereby demised, and will obtain the approval of the Commissioners to the plans and specifications of any intended buildings or alterations, a license for which may be obtained from the Commissioners, and erect or make the same in manner so approved.

9. The Association will carry out with due diligence the objects for which the Association is constituted, and will, during the said term, use and continue to use the Alexandra House and any buildings which may be erected on the land hereby demised for the purposes set out in their Memorandum of Association, and hereinbefore recited, and will constantly maintain the same in working order, and will not use the premises hereby demised or suffer the same to be used otherwise than for those purposes.

10. The Association will not assign, mortgage, charge, transfer, underlet or part with the possession of the premises hereby demised, or any part thereof, without the previous consent in writing of the Commissioners.

11. The Commissioners, or any person or persons by them authorised in that behalf, may at any time enter upon the said demised premises for the purpose of constructing, laying down, altering, repairing, cleansing, emptying or maintaining any sewers, watercourses, cesspools, gutters, drains, water-pipes, electric wires or gas-pipes in connection with or for the accommodation of any adjoining property, doing as little damage as may be to the said premises hereby demised, and restoring the surface of the soil and everything erected thereon without any unreasonable delay, but without making compensation for any temporary damage or inconvenience to the Association, so as no such sewer, watercourse, cesspool, gutter, drain, water-pipe, electric wire or gas-pipe shall pass under or through the said premises hereby demised.

12. The Commissioners may at any time, during the said term use, erect, rebuild or alter any land or buildings adjoining or near to the said demised premises for any purpose and in any manner they may think fit, notwithstanding that the same may obstruct or interfere with any right or light or other easement for the time being appertaining to or enjoyed with the said demised premises or any part thereof or any building for the time being thereon.

And the Commissioners hereby covenant with the Association that, if the Association perform and observe the several covenants, conditions and agreements herein contained, and on the part of the Association to be performed and observed, the Association shall and may peaceably and quietly hold and enjoy the premises hereby demised during the term hereby granted, without any lawful interruption or disturbance from or by the Commissioners or any persons claiming under or in trust for them.

AND IT IS HEREBY AGREED AND DECLARED, and these presents are on this condition, that if the Association shall at any time fail or neglect to perform and observe any of the covenants, conditions or agreements herein contained, and on the part of the Association to be performed and observed, or if an order be made, or an effective

resolution be passed for the winding-up of the Association, or if at any time the number of members is reduced below nine, and remains so reduced for the period of three calendar months, after notice from the Commissioners requiring the number of members to be increased to nine, then, and in any such case, the Commissioners or any person or persons duly authorised by them in that behalf, may re-enter into and upon the premises hereby demised or any part thereof in the name of the whole, and hold and enjoy the same thenceforth, as if these presents had not been made, without prejudice to any right of action or remedy of the Commissioners in respect of any antecedent breach of any of the covenants by the Association hereinbefore contained. IN WITNESS, &c.

APPENDIX H.

(See Report, page 17.)

LEASE of the SITE of the ROYAL SCHOOL of ART NEEDLEWORK.

THIS INDENTURE, made the 1st day of September 1901, between the Commissioners for the Exhibition of 1851, incorporated by Royal Charter dated the 15th day of August 1850, and hereinafter called the Lessors, of the one part, and the Royal School of Art Needlework, incorporated under the Companies Act, 1862, and the Acts amending the same and hereinafter called the School, of the other part, WITNESSETH, that in consideration of the School having erected the building hereinafter demised, and of the yearly rents and covenants, conditions and agreements hereinafter reserved and contained, and on the part of the School to be paid, performed, and observed, the Lessors do hereby demise unto the School and their assigns ALL THAT piece of land situate at Kensington in the County of London, on the west side of Exhibition Road, with a frontage thereto of 118 feet 6 inches or thereabouts, and on the north side of Imperial Institute Road, with a frontage thereto of 149 feet 6 inches or thereabouts, and abutting west and north on other property of the Lessors, and more particularly described and delineated in the plan drawn hereon, and therein coloured pink: Together with the building and all other erections erected and standing thereon, and together also with all the rights, members, easements and appurtenances to the said premises belonging, except and reserving unto the Lessors, their successors and assigns, such rights of building on and otherwise dealing with adjoining and neighbouring land, the property of the Lessors, their successors or assigns, as are hereinafter expressed. And also except and reserving unto the Lessors, their successors and assigns, the subway under the premises hereby demised, the position whereof is indicated by the portion hatched in red on the said plan. And also except and reserving unto the Lessors, their successors and assigns, the free running of water and soil coming from any other buildings or land contiguous to the said premises in and through the sewers, drains, and watercourses upon or under the said premises. To HOLD the same unto the School and their assigns for the term of 999 years from the 24th day of June 1898, YIELDING AND PAYING therefor for the first and second years of the said term the rent of a peppercorn, if demanded, and for the third and every subsequent year of the said term the yearly rental of 200*l.*, and so in proportion

for the period less than a year; AND ALSO YIELDING AND PAYING therefor for the first and every subsequent year of the said term (but subject to redemption as hereinafter provided) the redeemable yearly rent of 480*l.*, and so in proportion for any period less than a year, such several rents (hereinafter collectively referred to as "the rent") to be paid free from all deductions in respect of sewers, rates, tithes, or tithe commutation, rent charge, and land tax (if any) and all other rates, taxes, charges, assessments, impositions, obligations, outgoings, whether Parliamentary, parochial, or otherwise, which now are or at any time during the said term may become charged, imposed or payable upon or out of the said premises or any part thereof, or upon or by the Landlord or Tenant in respect of the rent (except the Landlord's Property or Income Tax), and to be payable by equal quarterly payments on the 25th day of March, the 24th day of June, the 29th day of September and the 25th day of December in every year, and the first quarterly payment of the said redeemable rent to be due and paid on the 29th day of September 1901, and the first quarterly payment of the said rent of 200*l.* to be due and paid on the 29th day of September 1900: AND the School do hereby for themselves and their permitted assigns, covenant with the Lessors, their successors and assigns, that they, the School and their permitted assigns, will pay the rent at the times and in manner aforesaid. AND ALSO will from time to time, during the said term, pay all sewers, rates, tithes, and tithe commutation, rent charge, and land tax (if any) and all other rates, taxes, charges, assessments, impositions, obligations, and outgoings, whether parliamentary, parochial, or otherwise, which are now or at any time during the said term may become charged or imposed or payable upon or out of the said premises or any part thereof, or upon or by the Landlord or School in respect thereof, or upon the rent (except the Landlord's Income or Property Tax). AND ALSO will at their own expense, as occasion shall require during the said term, and without being required so to do, well and sufficiently repair, maintain, paint, pave, empty, cleanse, amend, and keep in such good and substantial repair as is necessary for the occupation of the School, or other the purposes for which the said premises are hereinafter authorised to be used, the buildings and erections now standing, and all future buildings and erections to be erected and built on the said piece of land and every part thereof respectively, and the same being in all things so well and sufficiently repaired, maintained, painted, paved, emptied, cleansed, amended, and kept as aforesaid, at the end or other sooner determination of the said term, will quietly yield up together with all things which at any time during the last ten years of the said term shall have been in any way fastened to the said premises or to any future erections to be made thereon, and may come under the denomination of Landlord's fixtures, and moreover will permit the Lessors, their successors or assigns, and their respective Surveyor or Agents with or without workmen and others, at any reasonable hours in the daytime, during the last ten years of the said term, to enter upon the said premises and to take a Schedule of all the fixtures and things to be yielded up as aforesaid, AND ALSO, with or without workmen and others, at reasonable hours in the daytime twice or oftener in every year during the said term, to enter upon and examine the condition of the said premises and the buildings and erections for the time being thereon, and of all defects and wants of repair there found to give or leave notice in writing at the said premises, for the School or their permitted assigns to repair the same within three calendar months next after such notice, and they will, so often as the same shall happen, and within such three calendar months, well and sufficiently repair and re-instate the premises according to such notice.

And moreover, that the School or their permitted assigns will once in every four years of the said term paint all the woodwork and ironwork belonging to the said premises, or to the buildings or erections for the time being standing thereon, with two coats of proper oil colours in a workmanlike manner, and in a like manner will paint and paper once in every seven years of the said term the whole of the inside of the same premises and buildings (all such paintings to be done twice in proper oil colours). And also will at proper times and from time to time during the said term, as often as need shall require, pay a reasonable proportion of the expense of making, supporting, repairing, cleansing, lighting, watering, and amending all or any roads, pavements, channels, fences, party walls, wydraughts, gutters, sewers, and drains now or hereafter belonging to the said premises or any part thereof, or used therewith in common with the other premises near or adjoining thereto, such proportion to be determined by the Surveyor for the time being of the Lessors, their successors or assigns, and that in default of payment of such proportion the same shall be recoverable as rent in arrear under this demise. And also that the School and their permitted assigns shall not at any time make any alterations whatever in the elevation or architectural exterior decorations of the said building, and premises hereby demised or any future erections to be built on the same premises or any part thereof, without the consent in writing of the Lessors, their successors or assigns, or their Surveyor for the time being, and shall not nor will erect or set up any additional erections or buildings in or upon any part of the said premises without the previous consent of the Lessors, their successors or assigns, or their Surveyor for the time being, and shall not nor will at any time cut or injure any of the principal timbers or walls of the buildings from time to time standing or being on the said premises. And also that the School or their permitted assigns will not without the consent in writing of the Lessors, their successors or assigns, use the said premises or any part thereof or any building or erection now erected or hereafter to be erected thereon, for any purpose other than the purposes specified in the Memorandum of Association of the School, or as a School of Artistic Design, but this shall not permit the use of the same as a residence, except of an Officer of the School having charge of the building, or of an ordinary caretaker, and shall not wittingly or willingly do or suffer to be done any act or thing on the said premises or any part thereof, which may grow to the annoyance, damage, or disturbance of the Lessors, their successors or assigns, or any Tenant or Occupier of any part of the Estate of the Lessors, their successors or assigns, at Kensington aforesaid. And also will permit the workmen of the Lessors, their successors or assigns, and the Tenants and Occupiers of the adjoining premises belonging to them, such tenants and occupiers having previously obtained the consent in writing of the Surveyor for the time being of the Lessors, their successors or assigns, to enter into the said premises for the purpose of repairing the adjoining premises, making reasonable compensation to the School or their permitted assigns for all damage occasioned thereby. AND MOREOVER, will insure the said building hereby demised forthwith, and all buildings and erections hereafter erected on the said premises hereby demised or any part thereof, as soon as may be after the erection of such erections and buildings, in the names of the Lessors, their successors or assigns, either alone or jointly with the School or their permitted assigns to the amount of at least three fourths of the value of the same several buildings and erections respectively, in the Alliance Insurance Office, or some other Fire Insurance Office in London or Westminster, to be from time to time nominated by the Lessors, their successors or assigns, and will keep the same respectively so insured during all the said term hereby granted :

And will upon the request of the Lessors, their successors or assigns, or any of them or any of their respective Stewards, Agents, or Receivers of rents for the time being, show the policy or policies for such Insurance, and the receipt or receipts given by or on behalf of such Office for the premium or premiums of such insurance for the then current year, and that if and so often as the said premises or any buildings or erections for the time being erected thereon shall be destroyed or damaged by fire, the moneys which shall be received in respect of every or any such Policy shall be forthwith expended in repairing and rebuilding the premises to the satisfaction of the Surveyor for the time being of the Lessors, their successors or assigns, and if such moneys shall be insufficient the deficiency shall be made good by the School or their permitted assigns, and that if the several erections and buildings or any of them shall be burnt down or damaged by fire the School or their permitted assigns shall nevertheless pay the rent, as if no such fire had happened: AND ALSO that the School and their permitted assigns will not, during the said term, without the previous consent in writing of the Lessors, their successors or assigns, underlet or part with the possession of, or mortgage, charge or encumber the said premises or any part thereof, or attempt or affect so to do, but such consent shall not be withheld from an assignment by the School or their permitted assigns to an incorporated body formed for and carrying on purposes for which the said premises are hereinbefore authorised to be used, and having a financial position not inferior to that of the School at the date of these presents: And the School and their permitted assigns will at all times during the said term, within three calendar months after the date and execution of every or any permitted assignment of the said premises or any part thereof, for the whole then unexpired residue of the said term, give notice in writing of such assignment, showing the date of such assignment and the premises comprised therein and the name and address of the person or persons to whom such assignment shall have been made, to the Lessors, their successors or assigns, or their Agent for the time being, and will pay the fee of 10s. for registering such assignment in the books of the Lessors, their successors or assigns. PROVIDED ALWAYS, and it is hereby agreed and declared, that there shall not be hereby implied a grant by the Lessors of any right of light or air in respect of any building or erection erected or to be erected on the said piece of land hereby demised by the School or their permitted assigns, or any other rights except such as are hereby expressly granted or demised, and that the Lessors, their successors or assigns, shall have power without obtaining any consent from or making any compensation unto the School, or their permitted assigns, to deal as they may think fit with all their other property in the neighbourhood of the premises hereby demised, and to erect or suffer to be erected thereon any buildings whatsoever, and open any windows in the same, whether such buildings or any of them shall or shall not diminish the light or air which may now or at any time during the said term hereby granted, be enjoyed by the School or their permitted assigns, or by the persons for the time being occupying the said premises hereby demised. PROVIDED ALWAYS, and these presents are upon this condition, that if the rent or any part thereof shall be unpaid for twenty-eight days after any of the days on which the same ought to be paid, although no formal or legal demand shall have been made thereof, or if there shall be any breach, neglect, or non-observance, or non-performance of any of the covenants and conditions herein contained, and on the part of the School or permitted assigns to be observed or performed, then and in either of such cases it shall be lawful for the Lessors, their successors or assigns, at any time thereafter to enter into and upon the said premises or any part thereof in the name

of the whole, and thereupon the said term hereby granted shall absolutely determine: AND the Lessors do hereby, for themselves, their successors and assigns, covenant with the School and their permitted assigns, that they, paying the rent and performing and observing the covenants and conditions hereinbefore on their part contained, shall peaceably possess and enjoy the said premises hereby demised for the term hereby granted without any interruption by the Lessors, their successors or assigns, or any other person or persons lawfully claiming by, from, or under them, or any of them. And moreover, that it shall be lawful for the School or their permitted assigns at any time or times during the said term, on giving to the Lessors, their successors or assigns, not less than three calendar months' previous notice of their intention so to do, to redeem all or any part or parts of the redeemable rent hereinbefore reserved, by payment to the Lessors, their successors and assigns, of a capital sum or capital sums in the proportion of One hundred pounds for every 3*l.* of the said rent to be redeemed, and upon every or any such payment the amount of the said redeemable rent which shall be redeemed thereby shall cease and determine: PROVIDED ALWAYS, that no smaller part of such redeemable rent than the yearly sum of 15*l.* shall be redeemed at any one time. IN WITNESS, &c.

APPENDIX J.

(See Report, page 25.)

THE IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.

CHARTER OF INCORPORATION.

EDWARD VII. BY THE GRACE OF GOD of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas King Defender of the Faith
TO ALL to whom these Presents shall come GREETING.

WHEREAS the Right Honourable REGINALD McKENNA President of the Board of Education has lately presented to Us in Our Council a humble Petition and thereby represented to Us—

THAT Our Government have signified their intention to make arrangements for placing at the disposal of the Governing Body of a new Institution of Science and Technology when incorporated by Royal Charter certain buildings at South Kensington now used or intended to be used for the purposes of the Royal College of Science and Royal School of Mines together with certain rights and subject to certain liabilities attaching thereto or connected therewith and any moneys provided by Parliament as a grant in aid of the cost of the maintenance and administration of the Institution

AND THAT the Royal Commissioners for the Exhibition of 1851 have resolved to appropriate for the purposes of such an Institution when so incorporated certain portions of their estate at South Kensington

AND THAT divers persons are prepared to make munificent contributions towards the establishment and support of such an Institution

AND THAT the City and Guilds of London Institute have undertaken that the Central Technical College of that Institute shall be an integral part of such an Institution when so incorporated subject to the fulfilment of the conditions set out in the Schedule hereto and shall so continue so long as those conditions or such other conditions as that Institute may desire or may agree to in place thereof are fulfilled

AND WHEREAS We have taken the said Petition into Our Royal consideration and are minded to accede thereto :

NOW THEREFORE know ye, that We by virtue of Our Royal Prerogative and of all other powers enabling Us in that behalf do of Our special Grace certain Knowledge and mere Motion by these Presents for Us Our Heirs and Successors grant will direct and ordain as follows—

ARTICLE I.

ESTABLISHMENT NAME AND INCORPORATION OF THE IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.

There shall be and there is hereby established with its principal seat at South Kensington an Institution or Group of Associated Colleges with the name of the IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY. By which name the members for the time being of the Governing Body hereinafter constituted shall be and are hereby created one body corporate with perpetual succession and a common seal With full power and capacity by and in such name To sue and be sued And to take and hold and subject to such consent as may be by law required to grant demise exchange or otherwise dispose of real or personal property And notwithstanding the Statutes of Mortmain without any further or other license by virtue of this Our Charter to take and hold land to the annual value of 50,000*l.* according to the annual value thereof at the time or times when the same shall be taken in addition to the value of the land for the time being occupied by or on behalf of the said Corporation for the transaction of its business and the actual carrying out of its purposes And to do all other lawful acts whatsoever Which Institution shall have the constitution and powers and be subject to the regulations in this Our Charter prescribed and contained And which Institution is in this Our Charter referred to as “the Imperial College.”

ARTICLE II.

PURPOSES OF THE IMPERIAL COLLEGE.

The purposes of the Imperial College are to give the highest specialised instruction and to provide the fullest equipment for the most advanced training and research in various branches of science especially in its application to industry and to do all or any of such other things as the Governing Body hereinafter constituted consider conducive or incidental thereto having regard to the provision for those purposes which already exists elsewhere And for these purposes the Governing Body subject to the provisions of this Our Charter shall carry on the work of the Royal College of Science and the Royal School of Mines and may establish Colleges or other Institutions or Departments of Instruction And any Institution or Department so established and (subject as hereinbefore recited) the Central Technical College of the City and Guilds of London Institute shall be integral parts of the Imperial College And the said Central Technical College shall be hereafter called and known as and is hereinafter referred to as “the City and Guilds College.”

ARTICLE III.

VISITOR.

We reserve to Ourselves to be the Visitor of the Imperial College through the President of the Board of Education.

ARTICLE IV.

CONSTITUTION OF GOVERNING BODY.

The Governing Body of the Imperial College (hereinafter referred to as "the Governing Body") shall be constituted and shall when complete consist of forty members each of whom shall except as otherwise herein provided be appointed for a term of office of four years as follows—

Six by Ourselves

Four by the President of the Board of Education

Five each by the University of London the London County Council and the City and Guilds of London Institute

Two by the Royal Commissioners for the Exhibition of 1851

One by the Royal Society

Four by the Professorial Staff of the Imperial College—that is to say by the Principal Officer if not a Professor and the Professors—to be appointed in accordance with regulations to be made for the purpose

One each by the Institution of Civil Engineers the Institution of Mechanical Engineers the Institution of Electrical Engineers the Iron and Steel Institute the Institution of Naval Architects the Society of Chemical Industry the Institution of Mining Engineers and the Institution of Mining and Metallurgy

Provided that the first members of the Governing Body shall be—

- (1) The Right Honourable the Earl of Crewe, Lord President of Our Council ;
- (2) The Right Honourable Gerald William Balfour ;
- (3) The Right Honourable Sir Francis Mowatt, G.C.B., I.S.O. ;
- (4) Sir Julius Charles Wernher, Baronet ;
- (5) Sir William Henry White, K.C.B., LL.D., F.R.S. ;
- (6) Donald MacAlister, Esq., M.D., LL.D., D.C.L., Principal of the University of Glasgow ;

appointed by Ourselves :

- (7) The Right Honourable Arthur Herbert Dyke Acland ;
 - (8) Francis Grant Ogilvie, Esq., C.B., one of the Principal Assistant Secretaries of the Board of Education ;
 - (9) John Charles Gabriel Sykes, Esq., one of the Assistant Secretaries of the Board of Education ;
 - (10) Richard Tetley Glazebrook, Esq., D.Sc., F.R.S., Director of the National Physical Laboratory ;
- who shall be deemed to be appointed by the President of the Board of Education :
- (11) Sir Edward Henry Busk, Chairman of Convocation, and Past Vice-Chancellor of the University of London ;
 - (12) David Sing Capper, Esq., Professor of Engineering, King's College, London ;
 - (13) John Bretland Farmer, Esq., D.Sc., F.R.S., Professor of Botany, Royal College of Science ;

(14) Sir Henry Enfield Roscoe, D.C.L., LL.D., D.Sc., Ph.D., F.R.S., Past Vice-Chancellor of the University of London ;

(15) Sir Arthur William Rücker, D.Sc., LL.D., F.R.S., Principal of the University of London ;

who shall be deemed to be appointed by the University of London :

(16) Arthur Acland Allen, Esq., M.P. ;

(17) Henry Percy Harris, Esq., Chairman of the London County Council ;

(18) Sir Clement Kinloch-Cooke ;

(19) Richard Atkinson Robinson, Esq. ;

(20) John Thomas Taylor, Esq., I.S.O. ;

who shall be deemed to be appointed by the London County Council :

(21) The Right Honourable The Earl of Halsbury, F.R.S., Chairman of the Council of the City and Guilds of London Institute ;

(22) Sir John Wolfe Wolfe-Barry, K.C.B., F.R.S. ;

(23) Sir Owen Roberts, D.C.L., LL.D., Clerk to the Worshipful Company of Clothworkers ;

(24) Sir Walter Sherburne Prideaux, Clerk to the Worshipful Company of Goldsmiths ;

(25) Sir John Watney, Honorary Secretary of the City and Guilds of London Institute ;

who shall be deemed to be appointed by the City and Guilds of London Institute :

(26) Viscount Esher, G.C.V.O., K.C.B. ;

(27) Lieutenant-Colonel Sir Arthur John Bigge, G.C.V.O., K.C.B., K.C.S.I., K.C.M.G., I.S.O. ;

who shall be deemed to be appointed by the Royal Commissioners for the Exhibition of 1851 :

(28) Sir Archibald Geikie, D.C.L., D.Sc., LL.D., F.R.S., one of the Secretaries of the Royal Society ;

who shall be deemed to be appointed by the Royal Society :

(29) William Augustus Tilden, Esq., D.Sc., F.R.S., Dean of and Professor of Chemistry in the Royal College of Science ;

(30) William Gowland, Esq., Professor of Metallurgy in the Royal School of Mines ;

(31) William Ernest Dalby, Esq., Professor of Civil and Mechanical Engineering in the Central Technical College ;

who shall be deemed to be appointed by the Professorial Staff of the Imperial College :

(32) Sir Alexander Blackie William Kennedy, LL.D., F.R.S., President of the Institution of Civil Engineers ;

who shall be deemed to be appointed by the Institution of Civil Engineers :

(33) Tom Hurry Riches, Esq., President of the Institution of Mechanical Engineers ;

who shall be deemed to be appointed by the Institution of Mechanical Engineers :

(34) Robert Kaye Gray, Esq., a Past President of the Institution of Electrical Engineers ;

who shall be deemed to be appointed by the Institution of Electrical Engineers :

(35) Sir Hugh Bell, Baronet, President of the Iron and Steel Institute ;
who shall be deemed to be appointed by the Iron and Steel Institute :

(36) Francis Elgar, Esq., LL.D., F.R.S. ;
who shall be deemed to be appointed by the Institution of Naval Architects :

(37) Edward Divers, Esq., M.D., D.Sc., F.R.S., a Past President of the Society
of Chemical Industry ;
who shall be deemed to be appointed by the Society of Chemical Industry :

(38) Arthur Sopwith, Esq., a Past President of the Institution of Mining
Engineers ;
who shall be deemed to be appointed by the Institution of Mining Engineers :

(39) Walter McDermott, Esq., a Past President of the Institution of Mining
and Metallurgy ;
who shall be deemed to be appointed by the Institution of Mining and Metallurgy.

Any Member of the Governing Body to whose name in the foregoing list an odd number is prefixed shall be deemed to be appointed for a term of office ending on the thirty-first day of May 1913 and any member to whose name in the said list an even number is prefixed shall be deemed to be appointed for a term of office ending on the thirty-first day of May 1911.

As soon as the Governing Body think it desirable but not less than one year nor more than three years from the date of this Our Charter the Professorial Staff of the Imperial College shall appoint an additional member of the Governing Body subject to regulations made for the purpose provided that the person so appointed shall not be a person who was at the date of this Our Charter a Professor of the Royal College of Science or of the Royal School of Mines or of the Central Technical College of the City and Guilds of London Institute. The person appointed a member of the Governing Body under this provision shall be so appointed for a term ending on the thirty-first day of May 1911.

A casual vacancy occasioned by death resignation or otherwise shall be filled up as soon as conveniently may be in the case of any member appointed by Ourselves by Ourselves and in any other case by the person or body who appointed the member whose place has become vacant and the person appointed to a casual vacancy shall be so appointed for the remainder of the term of office of the person in whose place he is appointed.

Persons appointed to be members of the Governing Body need not be members of the body by which they are appointed.

A person appointed to be a member of the Governing Body shall be eligible for re-appointment at any time.

The acts or proceedings of the Governing Body shall not be invalidated by any vacancy in their number.

There shall be a quorum when 16 Governors are present at a meeting and every matter shall be determined by the majority of the members of the Governing Body present and voting on the question. In case of equality of votes the chairman or person acting as chairman shall have a second or casting vote.

The President of the Board of Education shall summon the first meeting of the Governing Body and shall make such arrangements for the purposes of that meeting as he thinks necessary and the Governing Body shall be deemed to be duly constituted on the occasion of that meeting.

ARTICLE V.

POWERS AND FUNCTIONS OF GOVERNING BODY.

Subject to the provisions of this Our Charter the Governing Body shall have such powers of general supervision direction and control over the courses of education or any parts thereof followed in any Institution or Department of an Institution which is an integral part of the Imperial College as they consider essential to the proper correlation of the work of the Imperial College or to the purposes of the Imperial College as hereinbefore defined.

All funds which may hereafter be contributed or assigned for the purposes of the Imperial College or for the purposes of any Department thereof whether by way of grant from Imperial local or other public funds or by way of fees of students annual contribution donation bequest or otherwise howsoever shall be paid in the first instance to the Governing Body and subject to the provisions of this Our Charter may be expended invested or otherwise dealt with by the Governing Body for the purposes of this Our Charter.

The Governing Body may if they consent be constituted trustees of any endowment the trusts of which are consistent with the provisions of this Our Charter.

The Governing Body shall determine the subjects of instruction to be respectively assigned to or undertaken by any Institution or Department of an Institution which is an integral part of the Imperial College.

The Governing Body shall appoint Professors and subject as aforesaid establish such staff (whether teaching examining administrative or otherwise) and make appointments to such offices or employments (whether permanent temporary or occasional) of for or in connection with the Imperial College as they think fit upon such terms remuneration and conditions as they determine.

The Governing Body shall award such diplomas or other certificates of distinction or proficiency to students of the Imperial College and subject to such regulations and conditions as they determine.

The Governing Body shall fix generally the scales of fees to be charged to students of the Imperial College for any courses of instruction thereat but may allow such exceptions thereto or such total or partial exemptions therefrom as they think proper Provided that the Governing Body shall admit without payment of fee as a student of the Imperial College in such Department thereof as the Board of Education select any person nominated by that Board as a Royal Exhibitioner or National Scholar on payment by the Board of the fee ordinarily required of a student in that Department.

The Governing Body shall from time to time consult not only expert members of their own body and of the teaching staff but also other persons with practical experience of industrial requirements for the purpose of obtaining expert advice with regard to such particulars connected with any Department as the Governing Body may refer to them and may if they think fit appoint an Advisory Board for any Department or Group of Departments. The Advisory Board so appointed for any Department or Group of Departments shall include the members of the Committee if any to which functions of management in respect of that Department or Group of Departments are assigned.

The Governing Body may found and endow Fellowships Exhibitions Scholarships or other prizes.

Subject to agreement with the Authorities of any College or other Institution

the Governing Body may by resolution recognise that College or Institution or any Department thereof as being in association with the Imperial College for all or any of the purposes of this Our Charter but no such resolution shall be valid or operative until allowed by Us in Council.

The Governing Body shall hold at least four ordinary meetings in each year and shall publish a report of their proceedings annually.

The Governing Body shall make Regulations with respect to matters for which under this Our Charter provision is to be made by Regulations and subject to the provisions of this Our Charter may make further Rules Regulations or Byelaws with respect to the conduct of their proceedings or to the carrying into effect of all or any of the purposes or provisions of this Our Charter and such Regulations shall provide amongst other things for the establishment and constitution of a Finance Committee and for the payment of any sum exceeding 100*l.* only on the authority of that Committee.

The Governing Body may appoint an Executive Committee and may also appoint such other Committees not necessarily consisting of members of their own Body as they think necessary and may delegate to any such Committee such of their powers or functions as they think fit.

ARTICLE VI.

ROYAL SCHOOL OF MINES.

One of the Departments of instruction of the Imperial College shall provide specialised courses in Mining and Metallurgy and that Department shall be called and known by the name of "the Royal School of Mines" and the Governing Body shall award the diploma of "Associate of the Royal School of Mines" to any student who completes such courses to the satisfaction of the Governing Body.

ARTICLE VII.

TRANSITORY PROVISIONS.

Subject to the provisions of this Our Charter the Governing Body shall appoint all Professors and other members of the Teaching Staff of the Royal College of Science or of the Royal School of Mines and all other persons who are at the date of this Our Charter in any office or employment in or in connection with those Institutions or either of them to as nearly as practicable the same offices or employments in or in connection with the Imperial College upon as nearly as may be the same terms and conditions and the persons so appointed shall continue in such office or employment unless and until the Governing Body otherwise decide.

Subject to the provisions of this Our Charter the Governing Body shall make provision for the continuance of any person who is at the date of this Our Charter a student of the Royal College of Science or of the Royal School of Mines or of the City and Guilds College as a student of the Imperial College until the expiration of the period for which he would in the ordinary course have remained a student of those Institutions or any of them and for his attendance at courses corresponding as nearly as may be to the courses which he would in the ordinary course have attended.

In the case of any student to whom (on account of the length of time for which he has before the establishment of the Imperial College been a student of the Royal College of Science) it appears to the Governing Body to be more appropriate to award

the diploma of "Associate of the Royal College of Science" than any diploma or other certificate of distinction or proficiency established by the Governing Body the Governing Body shall award that diploma accordingly.

ARTICLE VIII.

RELATIONS OF THE IMPERIAL COLLEGE WITH THE UNIVERSITY OF LONDON.

Subject to compliance with the Statutes of the University of London and pending the settlement of the question of the incorporation of the Imperial College with that University the Imperial College shall be established in the first instance as a School of the University.

The Governing Body shall enter into communication with the University of London with regard to the co-ordination of the work of the Imperial College with the work of the University and its other Schools and for the purpose of carrying out or facilitating such co-ordination may enter into such arrangements either by way of transferring or exchanging Departments of instruction or otherwise and upon such terms as may be agreed upon between the Governing Body and the University.

ARTICLE IX.

FURTHER PROVISIONS.

Neither sex nor opinions upon any religious subjects shall qualify or disqualify any person for membership of the Governing Body or for appointment to any office or employment or for admittance to any course of instruction or for any fellowship diploma or other certificate of distinction or for any emolument in or in connection with the Imperial College.

Unless the context otherwise requires the Interpretation Act 1889 shall apply to the interpretation of this Our Charter as it applies to the interpretation of an Act of Parliament so however that this Our Charter shall always be construed and adjudged in the most favourable and beneficial sense for the best advantage of the Imperial College and the promotion of the objects of this Our Charter as well in all Our Courts as elsewhere any non-recital mis-recital uncertainty or imperfection herein notwithstanding.

The Governing Body may by a resolution in that behalf passed at any meeting by a majority of not less than two-thirds of the members present and voting (being an absolute majority of the whole Governing Body) and confirmed at a meeting held not less than one month nor more than four months afterwards by a like majority alter amend or add to this Our Charter and such alteration amendment or addition shall when allowed by Us in Council become effectual so that this Our Charter shall thenceforward continue and operate as though it had been originally granted and made accordingly. This provision shall apply to this Our Charter as altered amended or added to in manner aforesaid.

Moreover We reserve to Ourselves power from time to time to alter amend or add to these presents by Supplemental Charter and in particular thereby to declare or define more particularly the purposes and scope of the Imperial College in relation to matters appertaining to the Biological Sciences and to make such provision in reference thereto as may thereupon appear expedient.

In witness whereof We have caused these Our Letters to be made Patent. Witness Ourself at Westminster the Eighth day of July in the seventh year of Our Reign.

SCHEDULE.

The following are the conditions hereinbefore referred to in respect of the City and Guilds College :—

(1) In determining the subjects of instruction to be respectively assigned to or undertaken by any Institution or Department of an Institution which is an integral part of the Imperial College the Governing Body shall in the case of the City and Guilds College act only after consultation with the Committee of Management of that College.

(2) The Governing Body shall place annually at the disposal of the Committee of Management of the City and Guilds College—

1. Such funds as may have been specifically assigned to them for the purposes of that College.
2. Such sum as may be determined by the Governing Body after consultation with the Committee of Management to represent a fair proportion of the total sum received as fees from students of the Imperial College.
3. Such further sum as the Governing Body may determine.

(3) The staff of the City and Guilds College (except such members thereof as are Professors of the Imperial College) shall be appointed by and be responsible to the City and Guilds of London Institute.

(4) For the purposes of the appointment of any Professor of the Imperial College whose work is chiefly concerned with instruction to be given in the City and Guilds College the Governing Body shall act only after having received and considered the recommendation of a Special Committee consisting of two members appointed by the Governing Body and three members appointed by the Committee of Management of that College.

(5) The City and Guilds College shall be managed by a Committee of Management appointed for the purpose by the City and Guilds of London Institute and subject to such powers of general supervision direction and control as are hereinbefore reserved to the Governing Body that Committee shall have power to manage the City and Guilds College as they think fit.

The Governing Body shall appoint five additional members upon the Committee appointed by the City and Guilds of London Institute as the Committee of Management of the City and Guilds College.

(6) Nothing in this Our Charter shall affect the power of the Council of the City and Guilds of London Institute to award either of the diplomas of Associate or Fellow of the Institute.

By Warrant under the King's Sign Manual,

(L.S.)

MUIR MACKENZIE.

AT THE COURT AT WINDSOR CASTLE,

THE 21ST DAY OF NOVEMBER, 1908.

Present,

THE KING'S MOST EXCELLENT MAJESTY IN COUNCIL.

WHEREAS by Article IX. of the Charter of the Imperial College of Science and Technology it is provided that :—

“ The Governing Body may by a resolution in that behalf passed at any meeting by a majority of not less than two-thirds of the members present and voting (being an absolute majority of the whole Governing Body) and confirmed at a meeting held not less than one month nor more than four months afterwards by a like majority alter amend or add to this Our Charter and such alteration amendment or addition shall when allowed by Us in Council become effectual so that this Our Charter shall thenceforward continue and operate as though it has been originally granted and made accordingly ” :

And whereas the Governing Body of the said College did, on the 24th day of July, 1908, in pursuance of the said power pass a resolution “ that the Rector of the Imperial College of Science and Technology be ex-officio a member of the Governing Body of the College ” :

And whereas the said resolution was confirmed at another meeting of the Governing Body, held on the 6th day of November, 1908, and has been submitted to His Majesty in Council :

Now, THEREFORE, His Majesty, by and with the advice of His Privy Council, is pleased to allow the amendment of the Charter by the addition to Article IV. of the Rector of the Imperial College of Science and Technology as an ex-officio member of the Governing Body.

A. W. FITZROY.

AT THE COURT AT BUCKINGHAM PALACE,

THE 28TH DAY OF JUNE, 1909.

Present,

THE KING'S MOST EXCELLENT MAJESTY IN COUNCIL.

WHEREAS by the Charter of the Imperial College of Science and Technology it is, amongst other things, provided that, subject to agreement with the authorities of any College or other Institution, the Governing Body may by resolution recognise that College or Institution or any Department thereof as being in association with the Imperial College for all or any of the purposes of the Charter, but no such resolution shall be valid or operative until allowed by His Majesty in Council :

And whereas the University of Sheffield and the Imperial College have agreed as to the conditions under which association is to take place :

And whereas the Governing Body of the Imperial College did, on the 2nd day of April, 1909, adopt the following Resolution :—

“ That the Metallurgical Department of the University of Sheffield be recognised as being in association with the Imperial College of Science and Technology for the advanced metallurgy of iron and steel, as provided for in the Charter, Article V., and in accordance with the Minutes of the Governing Body respecting Associated Colleges ” :

and have submitted the said Resolution for allowance by His Majesty in Council :

NOW, THEREFORE, His Majesty, having taken the said Resolution into consideration, is pleased by and with the advice of His Privy Council, to allow the same.

A. W. FITZROY.

AT THE COURT AT ST. JAMES'S,

THE 19TH DAY OF JULY, 1910.

Present,

THE KING'S MOST EXCELLENT MAJESTY IN COUNCIL.

WHEREAS by Charter dated the 8th day of July in the seventh year of the Reign of His late Majesty King Edward the Seventh after reciting :

that the Right Hon. Reginald McKenna the then President of the Board of Education had lately presented to His Majesty in Council a humble Petition and thereby represented amongst other things that the City and Guilds of London Institute (hereinafter referred to as “ the Institute ”) had undertaken that the Central Technical College of the Institute (hereinafter referred to as “ the City and Guilds College ”) should be an integral part of the Imperial College of Science and Technology when incorporated subject to the fulfilment of the conditions set forth in the Schedule to the said Charter and should so continue an integral part of the same as long as those conditions or such other conditions as the Institute might desire or agree to in place thereof should be fulfilled

the Imperial College of Science and Technology (hereinafter referred to as “ the Imperial College ”) was established and incorporated :

AND WHEREAS by Article II. of the said Charter it was provided that (subject as recited in the said Charter) the City and Guilds College should be an integral part of the Imperial College and should be thereafter called and known by that name :

AND WHEREAS by Article IX. of the said Charter it was provided that the Governing Body of the Imperial College (hereinafter called “ the Governing Body ”) might by a resolution in that behalf passed at any meeting by a majority of not less than two-thirds of the members present and voting (being an absolute majority of the whole of the Governing Body) and confirmed at a meeting held not less than one month nor more than four months afterwards by a like majority alter amend or add to the said Charter and that such alteration amendment or addition should when allowed by His Majesty in Council become effectual so that the said Charter should thenceforward

continue and operate as though it has been originally granted and made accordingly and that the now reciting provision should apply to the said Charter as altered amended or added to in manner aforesaid :

AND WHEREAS the said Charter was amended by a resolution of the Governing Body duly passed on the 24th day of July 1908 and confirmed on the 6th day of November 1908 and such amendment was allowed by His late Majesty in Council on the 21st day of November 1908 :

AND WHEREAS the Institute desire and have agreed to the conditions which are set forth in the Schedule hereto in place of the conditions set forth in the Schedule to the said Charter :

And WHEREAS a resolution was passed at a meeting of the Governing Body held on the 13th day of May 1910 by a majority of not less than two-thirds of the members present and voting (being an absolute majority of the whole of the Governing Body) that the said Charter be altered amended and added to by substituting the conditions which are set forth in the Schedule hereto for the conditions set forth in the Schedule to the said Charter :

AND WHEREAS the said resolution was confirmed at a meeting of the Governing Body held on the 8th day of July 1910 by a like majority :

AND WHEREAS such alteration and amendment of and addition to the said Charter have been submitted to His Majesty in Council :

NOW THEREFORE His Majesty by and with the advice of His Privy Council is pleased to allow the said alteration and amendment of and addition to the said Charter.

ALMERIC FITZROY.

SCHEDULE TO THE FOREGOING ORDER IN COUNCIL.

- 1 The City and Guilds College shall include the whole of the Engineering Department of the Imperial College.
- 2 (I.) The City and Guilds College shall be under the immediate control of a Delegacy (hereinafter called "the Delegacy") which shall be constituted and when complete shall consist of nineteen members to be appointed as follows :—

Eight by the Governing Body from their members.

Eight by the Institute from their members.

Three by the Wardens and Commonalty of the Mystery of the Goldsmiths of the City of London (hereinafter called "The Goldsmiths' Company").

Provided that the first members of the Delegacy shall be :—

1. The Right Honourable Sir Francis Mowatt, G.C.B., I.S.O.
 2. Sir William Henry White, K.C.B., LL.D., F.R.S.
 3. The Right Honourable Arthur Herbert Dyke Acland
 4. Francis Grant Ogilvie, Esq., C.B.
 5. Richard Atkinson Robinson, Esq.
 6. William Cawthorne Unwin, Esq., B.Sc., LL.D., F.R.S.
 7. Robert Kaye Gray, Esq., M.I.E.E.
 8. The Rector of the Imperial College
- who shall be deemed to be appointed by the Governing Body.

9. The Right Honourable The Earl of Halsbury, F.R.S.
10. The Right Honourable The Earl of Selborne, K.G., G.C.M.G.
11. Sir John Wolfe Wolfe-Barry, K.C.B., F.R.S.
12. Lewis Boyd Sebastian, Esq.
13. Alpheus Cleophas Morton, Esq., M.P.
14. Sir Edward Henry Busk, M.A., LL.B.
15. Sir Owen Roberts, D.C.L., LL.D.
16. Sir John Watney

who shall be deemed to be appointed by the Institute.

17. Sir Walter Sherburne Prideaux
18. Sir Arthur William Rücker, D.Sc., LL.D., F.R.S.
19. Sir Boverton Redwood, D.Sc.

who shall be deemed to be appointed by the Goldsmiths' Company.

(II.) Every member of the Delegacy to whose name in the foregoing list an odd number is prefixed shall be deemed to be appointed for a term of office ending on the 31st day of August 1914 and every member to whose name in the said list an even number is prefixed shall be deemed to be appointed for a term of office ending on the 31st day of August 1916. Except as herein otherwise provided members of the Delegacy hereafter appointed shall hold office for four years.

(III.) The members of the Delegacy hereafter appointed by the Institute shall include such Representatives of the Institute on the Governing Body as may be willing to serve as members of the Delegacy.

(IV.) It shall not be necessary for the three representatives of the Goldsmiths' Company on the Delegacy to be members of the Goldsmiths' Company.

(V.) A casual vacancy on the Delegacy occasioned by death resignation or otherwise shall be filled up as soon as conveniently may be by the body who appointed the member whose place has become vacant and the person appointed to a casual vacancy shall be so appointed for the remainder of the term of office of the person in whose place he is appointed.

(VI.) A person appointed to be a member of the Delegacy shall be eligible for re-appointment at any time.

(VII.) The acts or proceedings of the Delegacy shall not be invalidated by any vacancy in their number.

(VIII.) There shall be a quorum when six members of the Delegacy are present at a meeting and every matter shall be determined by the majority of the members of the Delegacy present and voting. In case of equality of votes the Chairman shall have a second or casting vote.

(IX.) The Secretary of the Imperial College shall summon the first meeting of the Delegacy and shall make such arrangements for the purposes of that meeting as he thinks necessary.

3 Subject to the provisions herein and in the said Charter contained :—

- (I.) The Delegacy shall be entrusted with the preparation and issue of the programmes advertisements and announcements of the City and Guilds College.
- (II.) The Delegacy shall appoint such Professors and establish such staff (whether teaching examining administrative or otherwise) and make such appoint-

ments to such offices or employments (whether permanent temporary or occasional) of for or in connection with the City and Guilds College as they think fit upon such terms remuneration and conditions as they determine. The Professors Members of the Staff and other persons so appointed shall be directly responsible to and liable to be dismissed by or otherwise dealt with by the Delegacy.

(III.) All fees payable by Students of the City and Guilds College shall be paid in the first instance to the Delegacy and shall be transmitted by the Delegacy to the Governing Body.

(IV.) The Delegacy shall have power to arrange for a separate banking account for the purposes of the financial arrangements contemplated by this Schedule.

(V.) The Delegacy may appoint such Committees as they think necessary and may delegate to any of such Committees such of their powers or functions as they think fit.

(VI.) The Delegacy shall cause minutes of their resolutions and proceedings (and the resolutions and proceedings of any Committee appointed by them) to be made in a book or books provided for that purpose and such minutes shall from time to time be communicated to the Governing Body and to the Executive Committee of the Institute (hereinafter called "the Executive Committee") and both of those bodies shall at all times have access to the records of the Delegacy and shall have power to call for reports from the Delegacy and to make such independent investigations as they or either of them shall deem fit.

(VII.) The Delegacy may make Rules Regulations or Byelaws with respect to the conduct of their proceedings or to the carrying into effect of all or any of the purposes or provisions of this Schedule.

(VIII.) The accounts of the Delegacy shall be audited by the Auditor of the Imperial College.

4 Subject to the powers of the Delegacy the general supervision of the work of the City and Guilds College shall reside with the Rector of the Imperial College as Rector of the College of which the City and Guilds College forms an integral part.

5 All contracts entered into and acts done by or under the authority of the Delegacy in relation to the City and Guilds College shall be deemed to be entered into and done by the Delegacy for and on behalf of the Imperial College. In any legal proceedings in connection with the City and Guilds College the Imperial College shall so far as practicable act in consultation with the Delegacy and as between the Imperial College and the Institute both bodies shall be jointly liable for all acts of the Delegacy in respect of the City and Guilds College.

6 (I.) On or before the 30th day of November in each year the Delegacy shall present to the Governing Body and to the Executive Committee a Report on the work of the past year. The Delegacy shall in such Annual Report after consultation with the Rector of the Imperial College make such proposals as may be necessary for the co-ordination of the work of the City and Guilds College with the other Departments of the Imperial College.

(II.) The Governing Body and the Executive Committee shall within two months

of the receipt of the Annual Report transmit to each other such comments or suggestions as they may respectively desire to make with regard to such Report.

(III.) If the Governing Body and the Executive Committee concur in such Report or if no such comments or suggestions as aforesaid are received by either of them within the specified time or if within one month after receiving such comments or suggestions the Governing Body or the Executive Committee as the case may be concur therein or do not dissent therefrom the Governing Body shall forthwith proceed to issue to the Delegacy instructions for the co-ordination of the work of the City and Guilds College with the other departments of the Imperial College in accordance with such Report and such comments and suggestions (if any).

- 7 (I.) On or before the 30th day of April in each year the Delegacy shall present to the Governing Body and to the Executive Committee a budget and scheme of work proposed for the following year.

(II.) The Governing Body and the Executive Committee shall within one month of the receipt of such budget and scheme transmit to each other such comments or suggestions as they may respectively desire to make with regard to the said budget and scheme.

(III.) If the Governing Body and the Executive Committee concur in such budget and scheme or if no such comments or suggestions as aforesaid are received by either of them within the specified time or if within one month after receiving such comments or suggestions the Governing Body or the Executive Committee as the case may be concur therein or do not dissent therefrom the Governing Body shall forthwith proceed to issue to the Delegacy instructions for the work and expenditure of the following year in accordance with such budget and scheme and such comments and suggestions (if any).

(IV.) If additional expenditure be needed during the year the Delegacy shall report to the Governing Body who shall authorize disallow or partially sanction such expenditure as they may think fit provided always that if such proposed additional expenditure exceeds the sum of £100 the Delegacy shall also report to the Executive Committee and the Governing Body shall not act upon such report until one month after such report has been forwarded to the Executive Committee or the Executive Committee have expressed their concurrence therein.

- 8 If the Governing Body or the Executive Committee dissent from such comments or suggestions as the other of them may from time to time make under the provisions of paragraphs (5) or (6) of this Schedule the provision as to conference between the Governing Body and the Executive Committee set forth in the next paragraph shall forthwith apply.

- 9 The Governing Body and the Executive Committee shall at the request of either confer at any time on matters connected with the City and Guilds College.

- 10 Any difference or dispute between the Governing Body and the Executive Committee after such Conference shall be referred to a Court of Arbitrators consisting of the Chairman of the Governing Body the Chairman of the Council of the Institute and the President of the Royal Society or their respective nominees.

- 11 The Institute shall place at the disposal of the Governing Body :

(A) The continued use of the City and Guilds College buildings subject to the performance by the Governing Body of the covenants and conditions in the

lease from the Commissioners for the Exhibition of 1851 under which the ground and premises are held or any modification thereof.

(B) An annual grant of £5,000.

Provided always that such buildings and annual grant of £5,000 shall be used by the Imperial College exclusively for the purposes of the City and Guilds College.

12 The Governing Body shall in every year allocate to the Delegacy for the carrying on of the work of the City and Guilds College during the ensuing year :

(A) The Annual Grant of £5,000 hereinbefore referred to and such other funds in the nature of revenue as may have been specifically assigned to the Governing Body for the purposes of the City and Guilds College.

(B) Such sum as may be determined by the Governing Body after consultation with the Delegacy to represent a fair proportion of the total sum received as fees from Students of the Imperial College.

(C) Such further sum if any as the Governing Body may determine and as may be necessary for the adequate maintenance of the City and Guilds College.

13 There shall be a Board of Studies of the Imperial College consisting of the Professors of all such Colleges as are or may become integral parts of the Imperial College including the City and Guilds College. The Rector of the Imperial College shall be ex officio Chairman of the Board of Studies. The Board of Studies shall from time to time make such suggestions to the Governing Body or the Delegacy as they consider essential to the proper correlation of the work of and discipline in the various Institutions or Departments which are or shall become integral parts of the Imperial College.

14 (I.) There shall be a separate Board to be called "The Engineering Board" consisting of the Rector of the Imperial College and such members of the Board of Studies of the Imperial College as shall be Professors of the City and Guilds College. The Rector of the Imperial College shall be ex officio Chairman of the Engineering Board and a Vice-Chairman to whom the title of Dean of the City and Guilds College shall be given shall be elected by the members of the said last mentioned Board.

(II.) The Engineering Board shall act as an advisory Board to the Board of Studies of the Imperial College on all matters in connection with the City and Guilds College.

(III.) All matters of discipline arising in connection with the students of the City and Guilds College shall in the first instance be dealt with by the Dean of the City and Guilds College who shall be responsible to the Rector of the Imperial College for all such matters of discipline.

15 The Delegacy may at any time after consultation with the Rector of the Imperial College report to the Governing Body on such subjects connected with the City and Guilds College as they may think desirable.

16 Nothing in this Schedule shall affect the power of the Council of the Institute to award either of the diplomas of Associate or Fellow of the Institute.

APPENDIX K.

(See Report, page 25.)

LEASE of SITES to IMPERIAL COLLEGE of SCIENCE and TECHNOLOGY.

THIS INDENTURE, made the 20th day of October 1909, between the Commissioners for the Exhibition of 1851 (hereinafter called "the Commissioners") of the one part and The Imperial College of Science and Technology (hereinafter called "the Imperial College") of the other part: WHEREAS the Imperial College has been incorporated for the purposes and with the powers specified in a Charter of Incorporation, granted by His Majesty and dated the 8th day of July 1907: NOW THIS INDENTURE WITNESSETH, that in consideration of the rent hereinafter reserved and of the covenants and conditions hereinafter contained, and on the part of the Imperial College and their successors to be observed and performed, the Commissioners do demise unto the Imperial College and their successors: ALL THOSE four pieces or parcels of land abutting on to Prince Consort Road in the Parish of St. Margaret, Westminster, in the County of Middlesex, which, with the approximate dimensions and boundaries thereof, are more particularly described in the plan drawn in the margin hereof, and therein coloured pink: Together with the right for the Imperial College and all persons authorised by them or by the Commissioners in common with all persons having the like right at all times hereafter and for all purposes, with or without horses, carts, carriages, or other vehicles, to pass and repass over and along the roadways shewn on the said plan, and thereon coloured brown and marked respectively "Private Roadway" and "Roadway in common": And together also with the right for the Imperial College to build over the said roadway marked "Roadway in common" on the said plan: And together also with the right of ingress and egress to and from the piece or parcel of land hereby demised, situate on the north side of Prince Consort Road, from and to the Royal Albert Hall Terrace, except and always reserved unto the Commissioners, their successors and assigns, lessees and other tenants, free passage and running of water and soil coming or to come from any other land or buildings of the Commissioners, their successors or assigns, adjoining or near to the premises hereby demised or any or either of them, in and through the channels, drains, sewers, and watercourses belonging or appertaining thereto, and except and reserved unto the Commissioners and the Corporation of the Royal Albert Hall, and for the workmen of the Commissioners or the Corporation of the Royal Albert Hall, at all reasonable times to come into and upon the said premises or any part thereof, to cleanse or repair the chimney shaft to be erected by the Imperial College in accordance with the covenant hereinafter contained: To HOLD the said hereby demised premises unto the Imperial College and their successors from the date hereof for the term of 999 years, thence next ensuing: YIELDING AND PAYING therefor during the said term the rent of 5*l.* per annum, payable on the day of the expiration of each year of the said term hereby granted: And the Imperial College for themselves, their successors and assigns, hereby covenant with the Commissioners and their successors to pay the said yearly rent hereby reserved, and also all rates, taxes, duties, charges, and assessments from time to time payable for and in respect of the said premises. And further that the Imperial College will, within seven years from the date hereof, or such longer period as may be

agreed between the parties, erect, build and complete on the several premises hereby demised, buildings suitable for additional purposes as may hereafter be defined by Charter or otherwise, together with the fixtures and fittings necessary or desirable for adapting the same for the purposes aforesaid, and that the aggregate sum to be expended by the Imperial College under this covenant shall be not less than the sum of 250,000*l.*, and that such buildings shall be erected in accordance with elevations which shall have first been submitted to and approved by the Commissioners, and in like manner no alterations shall be made in the elevation of the buildings, when erected, without such consent as aforesaid, and as regards the buildings to be erected on the north frontage of the plot of land adjoining the Courtyard of the Royal Albert Hall, the same shall not extend beyond such line as may be approved by the Commissioners. And also that, subject to the consent of the Corporation of the Royal Albert Hall and all other necessary parties being obtained, the Imperial College will at their own expense in erecting the buildings proposed to be erected on the piece or parcel of ground hereby demised, situate to the north of Prince Consort Road, erect, complete and finish, fit for use as part of such building, a chimney shaft on the north side of the building of similar capacity to the chimney shaft now standing there, and used by the Corporation of the Royal Albert Hall, and will make all necessary connections with the flues belonging to the Corporation of the Royal Albert Hall from such new chimney shaft, and will, when such flues have been connected and such shaft erected to the satisfaction of the Commissioners and their lessees, demolish the said existing chimney shaft and make good the roadway where the same is now standing. And also that the Imperial College will at all times, during the continuance of this demise, maintain the building or buildings for the time being standing on the said premises in a fit and proper state of repair for the purposes of the Imperial College, or such altered, amended, or additional purposes as may hereafter be defined by Charter or otherwise, and that the said demised premises and the buildings erected thereon shall be used for the purposes aforesaid, and for no other purposes without the consent of the Commissioners, their successors or assigns. And also that the Imperial College will, during the continuance of the said term, insure and keep insured the buildings, so to be erected as aforesaid, from loss or damage by fire in not less than two-thirds of the full value thereof. And also will at all times during the said term bear and pay all costs and expenses, payable either by Landlord or Tenant in respect of the premises hereby demised, of making, repairing, maintaining, rebuilding, and cleansing all ways, roads, pavements, sewers, drains, pipes, watercourses, fences or other conveniences which shall belong to or be used with the said premises hereby demised, and in particular will repay to the Commissioners a fair proportion of the expense of making up the roads on the north side of the plot of land hereby demised, which is situate to the north of the Prince Consort Road, with a view to the same being taken over by the City of Westminster, and will keep the Commissioners indemnified against all such costs and expenses as aforesaid: PROVIDED ALWAYS that if the rent hereby reserved shall be in arrear for 28 days, or if the Imperial College shall not observe the covenants herein contained or any of them, then and in any of such cases it shall be lawful for the Commissioners, their successors or assigns, to re-enter the said demised premises, and thereupon the said term hereby granted shall absolutely cease and determine. And the Commissioners do hereby for themselves, their successors and assigns, covenant with the Imperial College that they, the Imperial College, paying the said yearly rent of 5*l.*, and performing and observing all the covenants hereinbefore

contained, and on its part to be performed and observed, shall and may peaceably and quietly hold the said premises hereby demised, during the term hereby granted, without any eviction or disturbance by the Commissioners, their successors or assigns, or any person or persons lawfully or equitably claiming by, from, or under them. As WITNESS the respective Common Seals of the parties hereto the day and year first above written.

APPENDIX L.

(See Report, page 26.)

MEMORIAL TO THE PRESIDENT OF THE BOARD OF EDUCATION IN FAVOUR OF THE PROVISION OF MORE SUITABLE ACCOMMODATION FOR THE NATIONAL SCIENCE COLLECTIONS.

To the RIGHT HON. WALTER RUNCIMAN, M.P.,

President of the Board of Education.

SIR,

We, the undersigned, being deeply interested in the practice and progress of British Science, desire to bring before you the importance of the proper housing of the Science Collections at South Kensington. The permanent buildings now erected provide accommodation for Art Collections only; to complete the scheme a suitable building for the Science Collections is a necessity. The formation of a Science Museum representative of all branches of physical science, both pure and applied, has long engaged the attention both of the Government and of British scientific men. So long ago as 1874 the Duke of Devonshire's Commission on Science strongly recommended the establishment of such a Museum and in their fourth Report the Commissioners state:—

“While it is a matter of congratulation that the British Museum contains one of the finest and largest collections in existence illustrative of Biological Science, it is to be regretted that there is at present no National Collection of the instruments used in the investigation of Mechanical, Chemical or Physical Laws, although such collections are of great importance to persons interested in the Experimental Sciences.

“We consider that the recent progress in these Sciences and the daily increasing demand for knowledge concerning them make it desirable that the National Collections should be extended in this direction, so as to meet a great scientific requirement which cannot be provided for in any other way.”

Since these words were written a National Science Museum has been established and the collections in it have been steadily enriched by many important acquisitions. These collections are at present housed in the old buildings at South Kensington known as the Southern Galleries and the Western Galleries. They now include models and copies of historical and modern philosophical apparatus of the greatest value to all interested in the progress of British Science, and a large number of machines, instruments and models of great interest as illustrating the origin and development of our most pregnant British inventions, together with such special collections as the unique series of models illustrating the history of ship-building.

In 1876 the Royal Commissioners of the Exhibition of 1851 offered to the Government of the day a sum of £100,000 together with a site on the Commissioners' ground for the proper housing of this collection, under the condition that the Government should undertake its maintenance. In 1878 the Commissioners repeated their offer and in 1879 this was declined by the Government. In 1890 the land to the south of Imperial Institute Road, reaching to that conveyed to the Government in 1864 for the erection of the Natural History Museum and containing $4\frac{1}{2}$ acres, was sold to the Government for £70,000. This land has now been in part permanently allocated to the main section of the new buildings of the Imperial College of Science and Technology and to the building in course of erection for the Meteorological Office and a Post Office. The remainder of the site is at present occupied partly by temporary buildings and partly by the old buildings—the "Southern Galleries"—which now afford accommodation for the Machinery and Naval Architecture Collections of the Science Museum. This portion of the site, adjoining as it does on the North the Imperial College and on the South the Natural History Museum, is well regarded as an ideal position for the long projected Science Museum, which would complete the magnificent group of Museum buildings already erected at South Kensington.

The cost of acquisitions for the current growth of such a Science Museum, it may be noted, is far less than that of a corresponding Art Museum. The value of Art products increases rapidly with age, whereas the scientific implements, machinery and apparatus, interesting from a historical point of view, have rarely any great commercial value. The Art Collections of the Victoria and Albert Museum are now in possession of splendid buildings. If the buildings provided for the Science Collections were equally worthy of the interests which they should serve, the objects now in the Museum could be exhibited to much greater advantage. Moreover, those lacunæ which mark sections of recent activity in discovery and invention would be more readily filled than they can be while the obviously temporary character of the accommodation suggests to those who hold objects of interest in the history and advance of Science that the authorities have but little appreciation for such things.

Other countries, notably France and Germany, have recognised the importance of preparing suitable buildings for their national Science Museums. In Paris the Museum of the Ecole des Arts et Metiers has a world-wide renown; and a national German Science Museum is now being built in Munich at the cost of £300,000. England, the mother of so many great inventions that have proved to be pioneers in industrial Arts, stands alone in having made no adequate provision for exhibiting and arranging in proper order her unique collections.

The undersigned venture to urge upon you that the time has now arrived for action. Land sufficient for the purpose is in the Government's hands and the Royal

Commissioners of '51 if approached by the Government with a definite building scheme would doubtless give it due consideration. The need is great and the mass of British Science workers will hail your favourable decision with gratitude.

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APPENDIX M.

ACCOUNT OF THE CASH RECEIPTS AND PAYMENTS OF THE COMMISSIONERS
FOR THE EXHIBITION OF 1851, FROM 1ST JANUARY, 1889, TO 31ST
DECEMBER, 1910.

APPENDIX M.

ABSTRACT OF THE CASH RECEIPTS AND PAYMENTS OF THE ROYAL COMMISSIONERS

RECEIPTS										£	s.	d.	£	s.	d.
To	BALANCE at 1st January, 1889, per last Account—see Appendix "M" to the Seventh Report of the Commissioners (page 89)												4,173	15	1
"	LAND SOLD	...	...	...	...	...	...	...	...	106,157	10	0			
"	GROUND RENTS SOLD	...	...	...	...	...	...	...	...	172,153	0	0			
													278,310	10	0
"	RENTS RECEIVED...	...	...	...	...	...	...	...	...				318,335	10	6
"	INTEREST AND DIVIDENDS ON INVESTMENTS AND LOANS, after deducting Interest paid on moneys borrowed from the Bank of England	...	...	...	...	...	...	...	...				56,052	5	0
"	MISCELLANEOUS RECEIPTS	...	...	...	...	...	...	...	...				1,655	4	9
										</					

(see Report, page 28).

FOR THE EXHIBITION OF 1851, FROM 1ST JANUARY, 1889, TO 31ST DECEMBER, 1910.

PAYMENTS

	£	s.	d.	£	s.	d.
By BANK OF ENGLAND to extinguish Loans				184,325	0	0
GRANTS FOR EDUCATIONAL PURPOSES:—						
Science Research Scholarships and Bursaries	104,927	10	0			
Imperial Institute Research Laboratory	18,520	0	0			
Royal College of Music	11,000	0	0			
National Association for Promotion of Technical and Secondary Education	1,000	0	0			
				135,447	10	0
IMPROVEMENTS TO ESTATE AND BUILDINGS, STRUCTURAL ALTERATIONS TO THE EXHIBITION GALLERIES, LAYING OUT CENTRAL SPACE, &c.	27,810	19	1			
ROAD MAKING, PAVING, &c.	16,499	0	2			
				43,809	19	3
ROYAL ALBERT HALL:—						
Seat Rate after deducting Income received from letting seats	21,607	16	6			
Construction of New South Entrance, 1898	7,566	0	0			
Further Works on New South Entrance, including Construction of Vaults, 1906-1909 * (see note below)	3,505	0	0			
Less Amount repaid by Royal Albert Hall Corporation	500	0	0			
	3,005	0	0			
				32,178	16	6
ADVANCE TO ROYAL SCHOOL OF ART NEEDLEWORK bearing interest at 3 per cent.				20,000	0	0
SALARIES, &c., including Examiners' Fees in connection with Science Research Scholarships	20,582	4	9			
SURVEYOR'S AND LAW CHARGES	10,559	7	4			
PRINTING, OFFICE AND INCIDENTAL EXPENSES	3,426	14	7			
MAINTENANCE OF CENTRAL SPACE, VAULTS, &c.	2,404	3	10			
				36,972	10	6
				245,392	11	8
INVESTMENTS PURCHASED, as detailed on page 150... ..						
BALANCE at 31st December, 1910, viz.:—						
Cash at Bank of England	10,392	3	1			
Cash in hand	8	14	4			
				10,400	17	5

* NOTE.—Three-fifths of the cost (£3,505) of the further works in connection with the New South Entrance, amounting to £2,103, has been treated as an advance to the Royal Albert Hall, repayable in five annual instalments, the first of which, amounting to £500, was repaid in January, 1910. (See item in Statement of Assets and Liabilities, page 148.)

£658,527 5 4

Commissioners for the Exhibition of 1851 for the period of twenty-two years, commencing 1st January, throughout that period, and we certify the above Abstract to be correct and in accordance therewith. Accounts were certified by an officer appointed by the Bank of England, and during the remaining

DELOITTE, PLENDER, GRIFFITHS & CO.,
Chartered Accountants.

STATEMENT OF THE ASSETS AND LIABILITIES OF THE ROYAL

ASSETS		£	s.	d.	£	s.	d.
CASH, INVESTMENTS, LOANS, &c.:—							
1. Cash on Current Account at the Bank of England, Western Branch	...	1,392	3	1			
2. Cash on Deposit at Bank of England, Western Branch	...	9,000	0	0			
3. Petty Cash in hand	...	8	14	4			
4. Rents, &c., accrued due	...	3,473	7	7			
5. Royal Albert Hall, balance of advance to Corporation of £2,103, bearing interest at 4 per cent. per annum, being their proportion of Expenditure on works at South Entrance, repayable in five annual instalments (the first of which, amounting to £500, was repaid in January, 1910)	...	1,603	0	0			
6. Royal School of Art Needlework, advances for the construction of the new School Building, bearing interest at 3 per cent. per annum (secured by lease and mortgage)	...	20,000	0	0			
7. Investments at middle published prices on 31st December, 1910, as detailed on page 150	...	204,252	0	0			
KENSINGTON GORE ESTATE, VALUED ON BASIS OF MR. HENRY A. HUNT'S VALUATION OF 17TH JUNE, 1889:—							239,729 5 0
8. Albert Hall Mansions, leased at ground rents amounting to £8,150 (30 years' purchase)	...	94,500	0	0			
9. Houses, Nos. 11 to 16 Kensington Gore, leased for term expiring in 1928, at ground rents amounting to £87, including the reversion to the rack rents	...	7,551	0	0			
10. Houses, Nos. 17 to 24 Kensington Gore, and stables, let on leases, at rents amounting to £1,830	...	27,895	0	0			
11. Houses in Queen's Gate, from corner of Kensington Gore to Prince Consort Road, with stables behind, and three other stables in Jay Mews, leased at ground rents amounting to £2,884 (33 years' purchase)	...	95,172	0	0			
12. Houses in Queen's Gate, south of Prince Consort Road, leased at ground rents amounting to £740. 5s. (30 years' purchase)	...	22,207	10	0			
13. Land in Jay Mews, leased at a ground rent of £250 per annum (30 years' purchase)	...	7,500	0	0			
14. Houses and stables outside main square, leased at ground rents amounting to £604 per annum (average 35 years' purchase)	...	21,140	0	0			
15. Plot of land behind 180 Queen's Gate, leased at £10 per annum (say 20 years' purchase)	...	200	0	0			
16. Land in Exhibition Road, leased to Royal School of Art Needlework at a ground rent of £200 per annum (33 years' purchase)	...	6,600	0	0			
17. East and West Exhibition Galleries, leased to His Majesty's Commissioners of Works for 50 years from 1891, at £3,654 per annum, reduced during the year 1910 owing to the surrender of the Northern end of the East Galleries (see item 21), to £2,934 per annum (30 years' purchase)	...	88,020	0	0			
18. Vaults under land south of Royal Albert Hall, leased at £310 per annum (20 years' purchase)	...	6,200	0	0			376,985 10 0
ESTIMATED VALUE OF ASSETS WHICH MAY BE CONSIDERED REALISABLE							£616,714 15 0

ASSETS WHICH CANNOT BE CONSIDERED REALISABLE:—

19. Land in Exhibition Road between Central Technical College and Prince Consort Road, and
20. Land south of Royal Albert Hall and north of Imperial Institute
21. East Exhibition Galleries, Northern End, to be leased to the Imperial College of
22. Ground rents of Imperial Institute, Royal Albert Hall, Central Technical College, Royal

We certify the correctness of the Cash, the Investments, the outstanding Rentals, and the other values attached to the Kensington Gore Estate, amounting in total to £376,985 10s., are based on be in their possession. The amount of each liability above noted is properly stated.

5 London Wall Buildings, Finsbury Circus, E.C.
24th February, 1911.

(see Report, page 29).

COMMISSIONERS FOR THE EXHIBITION OF 1851—31st DECEMBER, 1910.

LIABILITIES												
										£	s.	d.
1. Maintenance of Buildings and Central Space	...	...	...	...	...	...	...	...	...	22	15	5
2. Maintenance of Roads	...	...	...	...	...	...	...	...	...	5	16	9
3. Law Charges outstanding	...	...	...	...	...	...	...	...	...	58	12	2
4. Surveyor's Charges outstanding	...	...	...	...	...	...	...	...	...	150	0	0
5. Engineer's Charges outstanding	...	...	...	...	...	...	...	...	...	52	10	0
6. Miscellaneous	...	...	...	...	...	...	...	...	...	9	17	0
										£299 11 4		
BALANCE, BEING THE ESTIMATED SURPLUS OF REALISABLE ASSETS OVER LIABILITIES										616,415	3	8
										£616,714 15 0		

leased to the Imperial College of Science and Technology for 999 years from October 1909 at a ground rent of £5 per annum.

Science and Technology.
College of Music, Royal College of Organists, and Alexandra House, £19. 2s. per annum.

Asset Balances, whose total amounted to £239,729 5s. on 31st December, 1910. The estimated valuation made in 1889, and the Title Deeds relating thereto are certified by the Solicitors to

DELOITTE, PLENDER, GRIFFITHS & CO.,
Chartered Accountants.

INVESTMENTS HELD BY THE COMMISSIONERS AT 31ST DECEMBER, 1910.

Nominal amount of Stock		Cost	Value at middle published prices, 31st Dec., 1910
		£ s. d.	£
49,100	2½ per cent. Consolidated Stock	45,171 11 7	85,973
50,900	Local Loans 3 per cent. Stock	49,976 5 1	47,464
15,700	Bank of England Stock	51,609 8 10	89,799
2,500	Bank of Ireland Stock	10,037 16 9	7,537
15,000	India 2½ per cent. Stock	18,701 7 0	10,237
11,200	Guaranteed 2½ per cent. Irish Land Stock	9,854 7 6	9,016
6,000	Canada 3 per cent. Stock	6,290 3 0	5,400
3,000	Cape of Good Hope 3½ per cent. Stock	3,465 12 0	2,940
17,000	Transvaal Government 3 per cent. Stock	17,010 6 7	15,93
2,500	Liverpool Corporation 3½ per cent. Stock	3,371 19 6	2,5
2,500	Portsmouth Corporation 3 per cent. Stock	2,634 7 0	2
9,100	London and North Western Railway 4 per cent. Preference Stock	13,224 13 10	
3,000	London and North Western Railway Ordinary Stock	6,214 16 0	
2,100	London and South Western Railway Ordinary Stock	4,559 19 0	2
2,500	Great Eastern Railway Ordinary Stock	3,090 1 0	1,
3,000	Great Western Railway Ordinary Stock	5,179 17 0	3,
		£245,392 11 8	£204,2

Value at middle
published prices,
31st Dec, 1910

£
89,978
47,464
89,799
7,587
10,287
9,016
5,400
2,940
15,987
2,500
2,100
9,787
4,140
2,982
1,725
3,765

204,252

ATTACHED TO 82D REPORT DATED 1856

OF LANDS ORIGINALLY PURCHASED BY THE COMMISSIONERS FOR THE EXHIBITION OF 1851

HYDE PARK

Site of the
Great Exhibition Building 1851

Prince of Wales Gate

KENSINGTON ROAD

GORE HOUSE

Station House

GORE HOUSE

Sunday School

ESTATE

LORD AUCKLAND

MR FREAKE

PRINCES GATE HOUSES

W. EVANS ESQ

THE EARL OF LISTOWEL

ENNISMORE TERRACE

ALL SAINTS CHURCH



SMITH'S CHARITY ESTATE
obtained in exchange for an outlying piece of the Villars Estate

PARISH OF ST. MARGARET'S WESTMINSTER

MR FREAKE

THE EARL OF HARRINGTON

VILLARS ROAD ESTATE

VILLARS ESTATE

ALBERT'S ROAD

VILLARS ESTATE

PARISH

HARRINGTON ESTATE

KENSINGTON

MUSEUM BUILDING IN COURSE OF ERECTION

BROMPTON PARK

BROMPTON CHURCH

BROMPTON SQUARE

BROMPTON ROAD

H.B. ALEXANDER ESQ

ESTATE

VILLARS ESTATE

HARRINGTON ESTATE

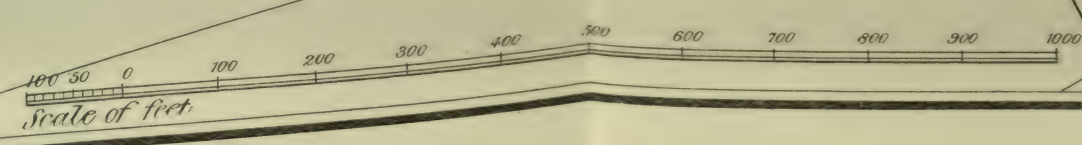
H.B. ALEXANDER ESQ

THE EARL OF HARRINGTON

Alms Houses

ALFRED PLACE WEST

ONSLOW TERRACE



NOTE

The Green colour indicates the Commissioners Estate, the different properties composing it being enclosed in boundary lines of various colours, viz:

- Gore House Estate
- Villars Estate
- Harrington Estate
- Smith's Charity Estate

The light brown colour indicates the different roads intersecting & bounding the Estate, the whole of them, with the exception of the Kensington Road on the North having been newly constructed by the Commissioners

EIGHTH REPORT
OF THE
THE COMMISSIONERS
FOR THE
EXHIBITION OF 1851.

TO THE
RIGHT HON. WINSTON CHURCHILL, M.P.
ONE OF HIS MAJESTY'S PRINCIPAL SECRETARIES OF STATE.



LONDON:
PRINTED BY SPOTTISWOODE & CO. LTD., 5 NEW-STREET SQUARE, E.C.

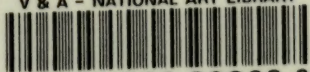
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